MISCELLANEOUS NOTES AND DESCRIPTIONS OF NORTH AMERICAN COLEOPTERA.

BY H. C. FALL.

No apology need be offered I think for the miscellaneous character of the present contribution; such papers are occasionally necessary if we would preserve the casual observations and discoveries in taxonomy, synonymy, distribution, etc., which must occur with every student of our Coleoptera. On the other hand, new species are still accumulating so rapidly that repeated effort on the part of the systematist is necessary in order to keep anywhere near abreast of the collectors and to assimilate the new material. It is neither possible nor in all cases desirable to present a complete synopsis of a group or genus in which new species are being made known, and a certain amount of isolated description is justifiable if care is taken to bring the new forms into line with present knowledge by careful comparison with the old and familiar.

CICINDELIDÆ.

CICINDELA Linn.

C. vulgaris var. **viridissima** new var.

This name is proposed for the well-known bright green variety of *vulgaris* occurring in Southern California. This form goes as *vibex* in most collections although it has been correctly pointed out that the true *vibex* of Oregon and Northern California is of a dark dull green color. The bright green form is sometimes locally abundant near San Bernardino and Colton, and I have recently seen a beautiful series taken in both October and March by Mr. G. R. Pilate. Mr. Hopping takes it commonly in Tulare County, where also occur darker examples which approach in color the true *vibex*.

CARABIDÆ.

CYCHRUS Fab.

C. corvus n. sp.

Form rather narrowly oblong oval, depressed, black throughout, feebly shining. Head narrow, eyes prominent, surface smooth, evenly convex. Prothorax $2\frac{1}{5}$ times as wide as the head, $\frac{3}{4}$ as long as wide,

widest at middle, sides moderately strongly rounded anteriorly, convergent and feebly sinuate posteriorly, the hind angles prolonged over the elytra; apical margin very broadly posteriorly arcuate between the reflexed sides, disk broadly convex and impunctate, median line fine in front, deeper behind, side margins moderately reflexed in front, more widely so behind. Elytra $\frac{2}{3}$ wider than prothorax and nearly three times as long, $\frac{1}{2}$ longer than wide, lateral margin reflexed anteriorly, more strongly so around the humeri, disk flattened, 14 or 15 striate, the striæ moderately impressed, rather finely punctate, somewhat irregular or confused laterally. Inflexed portion of the elytra sparsely, finely, obsoletely punctate; abdomen impunctate. Length, 16.5 mm.; width, 6 mm.

Chiricahua Mountains, Arizona. A single male specimen collected and given me by my friend Mr. V. W. Owen of Los Angeles.

In all essential characters this species is nearly related to *van dykei*. The color is at first glance entirely black, but in certain lights the elytra show the faintest imaginable hint of a dark purplish reflection. The front tarsi are, as in *van dykei*, strongly dilated, the first joint triangular and a bit longer than wide, the second quadrate, and the third smaller and evidently transverse. The two species are quite different in their minor characters, *van dykei* being a distinctly less elongate species and more prettily colored, the thorax rather closely punctate and with side margins more widely reflexed, the elytral striæ finer but more coarsely punctured, and the reflexed portion of the elytra and sides of the ventral segments numerously punctate.

CALOSOMA Web.

C. parvicollis n. sp.

Deep black throughout, without metallic lustre except very faintly in the concave elytral margins; head and prothorax somewhat shining, elytra duller. Head fully $\frac{2}{3}$ as wide as the prothorax, rather finely and moderately closely punctate between the eyes, becoming nearly smooth in front; epistomal impressions rather deep. Prothorax from a little less than to fully $\frac{2}{3}$ wider than long, sides rather sharply angulate at middle, arcuate in front, straight behind, a little sinuate just before the hind angles; base also distinctly sinuate near the angles, making the latter evidently acute; base narrower than the apex; disk finely punctate, becoming more distinctly so near the margins, finely rugous posteriorly; basal impressions moderate. Elytra $\frac{3}{5}$ longer than wide,

and about $\frac{7}{10}$ wider than the prothorax; a little wider at apical third, more noticeably so in the female; elytral series of punctures unimpressed, very fine, becoming subobsolete on the declivity, connected by transverse impressed lines in basal third, except near the suture; the interstitial punctures on intervals 4, 8, 12, fine but discernible. Legs moderate. Length 21–24 mm.

Southern California (San Bernardino, Riverside and Pasadena).

Parvicollis is closely allied to *prominens*, from which it differs most obviously in its more finely punctured head and relatively small prothorax. Careful measurements of the specimens in my collection show that the relative width of elytra to thorax varies in *prominens* from 1.39 to 1.58 (ave. 1.48) and in *parvicollis* from 1.64 to 1.73 (ave. 1.69). The difference is quite conspicuous when series are compared. *Prominens* is also a larger species; it is common in Arizona, but whether it occurs in California is uncertain, the specimens recorded under this name in my Southern California list being the one here described.

C. eremicola n. sp.

Form of *peregrinator*, black throughout, without trace of metallic lustre. Head finely punctate, and subrugulose; sides of prothorax narrowly rounded or subangulate, nearly as in *peregrinator*. Elytra about $\frac{2}{5}$ longer than wide, the punctured series feebly impressed basally, the punctures rather coarse in basal two-fifths, thence becoming rapidly smaller, very minute apically; sides near the humeri with a few rather faint transverse rugæ. Length, 17–19 mm.; width, 8–10.3 mm.

San Clemente Island, Southern California.

Described from a single pair collected and given me by Mr. Don Ross of Pasadena, California.

The above very brief description is sufficient when the differences between it and *peregrinator* have been pointed out. The size is very much smaller in *eremicola*, the sides of the prothorax a little less evidently angulate, the elytra relatively shorter, the ratio of length to width being 1.44 in the male and 1.40 in the female; while in *peregrinator* the length ranges from 1.60 to 1.75 times the width. The strial punctures of the elytra are much coarser basally in *eremicola*, and the last ventral of the female is unmodified. In *peregrina-*

tor (♀) the last ventral is finely punctate and bristling with short erect black hairs. This character, which seems to have escaped notice hitherto, may be relied upon to separate *peregrinator* from all allied forms.

C. tristoides n. sp.

This name is proposed for a form occurring in our extreme southwestern region, which is closely related to but quite surely distinct from *triste* of the West Central States. As compared with Kansas specimens of *triste* in my collection, *tristoides* differs in the much finer punctures of the elytral series, these becoming very minute posteriorly, and in the usually well developed greenish lustre of the elytral margins. The sides and basal impressions of the prothorax also show more or less of the metallic lustre in many specimens, but in some it is barely perceptible. The coarser serial punctures of intervals 4, 8, 12 are green as in *triste*, but in the latter species the side margins of the body are scarcely at all so. In the type series of three examples of *triste* in the LeConte collection the sides of the prothorax are evenly rounded and the elytra are parallel in both sexes. In *tristoides* the prothorax exhibits considerable inconstancy in both relative and actual dimensions, the width varying from 1.53 to 1.72 times the length, the sides either evenly rounded or evidently straighter posteriorly, ; the basal sinuations are also variable in depth. The elytra are quite uniformly parallel in the male and a little wider posteriorly in the female. It is, however, very probable that a good series of *triste*, or for that matter of any other species of Calosoma, would show similar variability. In length *tristoides* ranges from 22 to 24 mm., width 9.4–10.2 mm. The length given for *triste* in LeConte's table is 18 mm.

Tristoides is based on a good series taken by Mr. Ricksecker at or near San Diego, California.

A single specimen from an unknown source and simply labeled "Cal." has stood for years in my collection as *triste*. There is a single example from "Cal." in the LeConte collection placed near but not in line with his specimens of *triste* and bearing a "?" label.

DYSCHIRIUS Bon.

D. varidens n. sp.

Moderately elongate, black, with more or less distinct green-bronze lustre, legs and antennæ dark rufous. Epistoma tridentate, the middle tooth either nearly as acute and prominent as the lateral ones, or merely an obtuse prominence, with all intermediate degrees of development. Front transversely sulcate, smooth. Prothorax ovate, very slightly wider than the prothorax, $\frac{3}{5}$ as wide as long, sides parallel and very broadly arcuate in basal two-thirds, base with entire marginal line; striæ very lightly impressed, nearly obsolete for a short distance at base, and faint but traceable for a longer distance at apex; strial punctures rather fine, separated by their own diameters or a little more, becoming rapidly finer behind the middle, and disappearing before the apex; third interval tripunctate. Length, 2.7–3 mm.; width about 1 mm.

California (Los Angeles—type, Pasadena, Azusa, Pomona, Santa Cruz, Santa Clara County, San Francisco, Humboldt County, Mohawk).

By the basal marginal line of the elytra this species is to be associated with *tridentata*, *patruelis* and *basalis*, and should follow the first named species. It is always smaller than *tridentata*, with paler legs and antennæ, and with finer elytral striæ, which are more nearly obliterated at apex and less punctured. *Patruelis* has entirely black legs and antennæ, and the median clypeal tooth is obsolete. Specimens of *varidens* with poorly developed median clypeal tooth would go as *analis* by the LeConte table, but the latter is a stouter species, the elytra shorter and more robust, with deeper more closely punctate striæ.

BEMBIDIUM Lat.

In his preliminary remarks on the *litorale* group of this genus Hayward describes the mentum tooth as "large and entire." Possibly this statement is traditional; it is in any case based on very insufficient study, since a careful investigation reveals an unusual and most surprising amount of variation in this respect among the few species that constitute the group. The form of the tooth is quite constant within specific limits, so far as my material goes, and taken together with a second character to be mentioned below

enables us to more readily and accurately separate the species than has been possible. It seems to have entirely escaped notice that in certain species of this group the seta near the middle of the side margin of the prothorax is lacking. The marginal setæ are normally two in number, one in the hind angle, and the other usually a little in advance of the middle. In one species—*laevigatum*—there are two additional setæ close together at the anterior angle. The seta in the hind angle is probably present in every species of the genus, though I have not attempted to verify this. The submedian seta is almost as universally present. Specimens of course frequently occur with some or all of the setæ absent, but the presence of the setigerous punctures in the margin in the vast majority of instances shows that they have been accidentally lost. In three species of the present group, however, the submedian seta is persistently lacking, and the absence of a puncture in the margin shows that this is the normal condition. Whether there are any other native species of the genus which show this peculiarity I can not positively say, but it seems very unlikely, since in the 121 species in my collection I find no other exception to the rule. In the European *litorale* the submedian seta is also lacking, and this enables us at once to separate it from the *lacustre* of LeConte, which differs furthermore in the form of the mentum tooth. *Lacustre* must, therefore, be restored to specific standing. It is indeed doubtful if the true *litorale* occurs at all in this country. Collectors should carefully examine their material in this group, and if native specimens are found it would be well to publish the fact. Two new species from the west coast appear in the following table and *litorale* is included for comparison:

Side margin of thorax without median seta.

Mentum tooth elongate parallel, rounded or subtruncate at tip; fourth dorsal stria sinuate; size comparatively small; form narrow and convex.....**inæquale.**

Mentum tooth shorter and broader, sides converging in front, the tip truncate and usually more or less emarginate.

Form slender and convex (size of *inæquale*), fourth stria not or very feebly sinuate, strial punctures coarse .....**hesperum.**

Form broader and more depressed, size larger, strial punctures relatively fine.

Thorax nearly as long as wide, base and apex subequal; fourth stria sinuate.....**litorale.**

Thorax evidently though not strongly transverse, base wider than apex; fourth stria not distinctly sinuate.....**lorquini.**

Side margin of thorax with median seta.

Mentum tooth shorter, triangular; thorax strongly transverse, apex nearly as wide as base.

Mentum tooth acute at apex; hind angles of thorax evidently carinulate.....**carinula.**

Mentum tooth truncate and usually somewhat emarginate at apex; hind angles of thorax not distinctly carinate.....**zephyrum.**

Mentum tooth elongate, parallel, tip truncate; thorax moderately transverse, apex evidently narrower than the base.

Fourth elytral stria sinuate; size smaller.....**lacustre.**

Fourth elytral stria not sinuate, size larger....**punctatostriatum.**

B. hesperum n. sp.

Moderately elongate and convex, green bronze, first four elytral intervals in great part, and the fifth at middle dark cupreous or cupreo-violaceous, the quadrate impressions green; surface throughout alutaceo-granulose, more finely so on the prothorax and on the cupreous elytral areas, which are more shining. Palpi dark, more or less pale at base; basal joint of antennæ pale beneath. Prothorax fully four-fifths as long as wide, widest at middle, base one-fourth wider than the apex; sides finely margined, moderately sinuate behind, the hind angles not very prominent, sharply defined, almost rectangular; surface finely transversely creased or wrinkled; median line almost entire; basal impressions unistriate, the angles not carinate. Elytra about three-fifths wider than the prothorax, striæ somewhat impressed, rather coarsely and closely punctate, more finely apically as usual; fourth not or scarcely sinuate. Beneath greenish-black, legs pale at base. Length, 5.2–5.3 mm.; width, 2.2–2.25 mm.

Vancouver Island (type) and California (Placer County).

As its position in the table indicates, this species is nearest *inæquale*, with which it agrees nearly in general form. It seems to average a trifle larger than *inæquale*, and is more prettily colored; the hind angles of the prothorax are not quite so prominent and are slightly obtuse; the tibiæ, palpi, and base of antennæ less pale. The mentum tooth is rather short, subtriangular, the tip truncate and a little emarginate.

B. zephyrum n. sp.

Form broad, subdepressed, viridiaeneous, prothorax at middle, elytra with a basal spot occupying intervals 3–5, and a broad central stripe dilated at middle and enclosing the quadrate impressions, blackish purple; surface alutaceo-granulose, the dark areas more finely so and less dull. Antennæ and palpi entirely dark metallic. Prothorax slightly more than two-thirds as long as wide, base but little wider than the apex, sides more widely margined and not deeply sinuate behind, the angles nearly right; surface slightly wrinkled transversely on the disk, longitudinally at base; median line nearly entire; base angles with a very feeble oblique carina. Elytra one-half wider than the prothorax, the striæ finely punctate, the fourth not or but slightly sinuate. Body beneath greenish; legs pale at base. Length, 5.25–6 mm.; width, 2.4–2.6 mm.

The series before me includes specimens from Humboldt County, California (type), collected by Van Dyke, and from Newport, Oregon, collected by Wickham.

This species approaches *carinula* in its strongly transverse prothorax, but differs from it and from all our other species of this group in having the side margin of the thorax slightly wider and subexplanate anteriorly.

B. whitneyi n. sp.

Rather broad, moderately convex, black, elytra each with a subtriangular subhumeral spot, and a transverse lunate subapical spot, pale, surface scarcely æneous, strongly shining, either polished throughout or with the elytra barely detectably alutaceous. Head as wide as the thorax at apex; palpi and antennæ black, the latter one-half the length of the body. Prothorax barely one-third wider than long, base and apex subequal, sides distinctly sinuate behind, the angles rectangular; basal impressions wrinkled and punctate, the inner stria deep, the outer feeble; hind angles carinate. Elytra one-half wider than the prothorax and nearly three and one-half times as long, sides parallel in basal two-thirds, humeri rounded, striæ very fine, not impressed, the outer ones feeble or obsolete, the discal one traceable to apex; third stria with two setigerous punctures situated nearly at the basal and apical thirds. Body beneath and legs black and shining. Length, 4.75–5.2 mm.; width, 1.8–2.2 mm.

Mt. Whitney, California—8,000 to 11,000 feet. Collected and given me by Mr. F. S. Daggett.

The pale elytral spots are quite bright in the type, but more obscure in two other examples. *Whitneyi* is allied most nearly to *breve*, which is a smaller entirely black species, the prothorax more transverse and with the hind angles obtuse. It was also taken by Mr. Daggett on Mt. Whitney.

B. versicolor; B. timidum; B. pictum.

I cannot at all agree with Hayward in his interpretation of the above named forms, and am convinced after a study of the types that the Henshaw List is correct in giving *pictum* specific standing, and that *timidum* is really a synonym of *versicolor* as was previously supposed.

Hayward separates *versicolor* and *timidum* primarily on the completeness of the lateral striæ of the elytra, these being abbreviated behind in the former, and entire in the latter. To this is added—head usually more evidently alutaceous in *timidum* and the prothorax more strongly rounded in front and more sinuate behind in *versicolor*. My own study leads me to believe that it is impossible to base a distinction on the lateral striæ, as every degree between the extremes may be found in a large series of specimens, which are so completely in accord in other respects that their identity can not be doubted. If, however, we take the secondary character above mentioned, separation of the two species is not difficult. The type of *versicolor* is from Lake Superior; it has the head distinctly alutaceous, the sides of the prothorax nearly as much so, the surface becoming smoother at the middle, sides of thorax moderately rounded and sinuate. This species is an abundant one in the northern half of the United States and Canada, extending from the Atlantic to the Pacific. The western specimens are more likely to have the lateral striæ of the elytra entire, and one of these from the Rocky Mountains served as the type of *timidum*. *Pictum* was also described from the Rocky Mountains. It is almost invariably smaller than *versicolor*, the head not alutaceous except very finely so posteriorly, the front between the eyes always polished, the prothorax polished throughout and more deeply sinuate behind. The lateral striæ vary in their development in the same way as in *versicolor*, and as a result specimens are indiscriminately mixed with *versicolor* and *timidum* as separated by Hayward.

I do not know how far *versicolor* extends its range in the east, nor how for east and north *pictum* occurs, but *versicolor* is essentially a northern and *pictum* a southern species. On

the Pacific Coast *versicolor* is rarely found south of Central California; *pictum* is known to me from Louisiana to Southern California.

Unfortunately, as has already been pointed out in the books, the name *pictum* is preoccupied, and we must use Motschulsky's name *flavopictum* for this species.

HYDROPHILIDÆ.

CRENIPHILUS Mots.

At the time of Dr. Horn's synopsis of this genus in 1890, a single species only—*degener*—was known with 7-jointed antennæ. This extreme reduction in the number of joints was commented upon as being quite remarkable, and it is certainly not less so that of the four new forms discovered since Horn wrote, all, without exception, possess this peculiarity. Of these four, one—*elegans*—has been previously described; the others are now made known.

C. lodingi n. sp.

Oval, moderately convex, very slightly less than twice as long as wide, black, not or but very faintly æneous, lateral margin with a sharply defined pale border, narrow on the prothorax, becoming wider toward the apex of the elytra, where it involves about one-fourth or one-fifth of the sutural length. Antennæ, palpi and legs pale, except the femora, which are in great part dusky. Punctation of elytra coarse and rather close, the punctures separated by from a little less to a little more than their own diameters; head and prothorax somewhat more finely punctate. Body beneath blackish, opaque, finely pubescent: front and middle thighs pubescent; hind thighs glabrous, impunctate and without strigosity; hind tarsi and tibiæ subequal in length, the latter possibly a trifle longer. Prosternum carinate; mesosternal keel strong. Length 2.3–2.5 mm.

Mobile, Alabama.

Described from a series of nine examples collected and given me by Mr. H. P. Loding, to whom it is a pleasure to dedicate the species in recognition of his painstaking and very successful efforts in collecting the smaller and more obscure species of his fauna.

The present species is remarkable, first for its 7-jointed antennæ, and again for its very close affinity to *C. elegans* of California. The two are virtually identical in every respect

except sculpture, the punctuation of *elegans* being much sparser and finer. Elegans has thus far been found only in salt pools or springs, while *lodingi* occurs in fresh water creeks as I am informed by its discoverer.

C. ellipsis n. sp.

This name is proposed for a form closely related to *elegans* and *lodingi*, agreeing with them in antennal, sternal, and crural characters. The sides of the prothorax are not distinctly paler, being but feebly and diffusedly so at the extreme margin; the elytra are paler at sides but not very evidently so basally, and the pale border is nowhere sharply defined as it always is in *elegans* and *lodingi*. The punctuation is finer than in either of the two allied species, being on the head and thorax exceedingly fine and remote. The size is apparently slightly smaller and the form just visibly more convex. Length, 1.8–2.2 mm.; width, 1–1.2 mm.

Described from two examples given me by Mr. Schwarz by whom they were collected at Hot Springs, Arizona.

Var. **nanus** n. var.

Several specimens from Capron and Lake Harney, Fla., recently sent for examination by Mr. Schwarz are exceedingly closely allied to the typical Arizona specimens of *ellipsis*, but differ constantly in their smaller size; the elytral punctuation seems also relatively a little coarser; for these the above varietal name may be used. Length, 1.6–1.8 mm.; width, .8–.9 mm.

C. reductus n. sp.

Elliptical, four-fifths longer than wide, rather strongly convex, piceous black, surface at most very faintly æneous; sides of prothorax narrowly, gradually diffusedly paler, sides of the elytra toward the apex similarly but more broadly so. Antennæ 7-jointed. Head and prothorax polished and very finely and sparsely punctulate; elytra more evidently and more closely punctate, the punctures toward the sides and apex separated by their own diameters or a little more, somewhat finer and sparser on the disk basally, surface between the punctures dulled by the presence of a system of ground sculpture consisting of very fine punctures and short irregular lines. Beneath opaque, hind femora stout, glabrous, shining, with a few fine scratches toward the base. Prosternum carinate; mesosternal keel not very strongly developed, the free angle conical and acute. Length, 1.6–1.8 mm.; width, .9–.95 mm.

Capron, Florida (Hubbard and Schwarz).

The five species of *Creniphilus* with 7-jointed antennæ are readily separated as follows:

Prothorax and elytra with sharply defined pale margin which is broader behind.
  Punctuation fine and sparse (California).....**elegans.**
  Punctuation much coarser and closer (Alabama).....**lodingi.**
Prothorax and elytra gradually suffusedly paler at sides.
  Form less convex, upper surface polished throughout and finely punctate (Arizona, var. *nanus* Florida).....**ellipsis.**
  Form more convex, elytra with alutaceous sculpture.
    Prothorax minutely sparsely punctate, elytra relatively coarsely punctured (Florida).....**reductus.**
    Prothorax distinctly moderately closely punctate, elytra without punctures (Florida).....**degener.**

STAPHYLINIDÆ.

MYCETOPORUS Mann.

Our species of *Mycetoporus* are divisible into two well marked groups which are at least subgeneric. In the first, including the majority of the species thus far described, the middle and hind tibiæ are fringed with coarse unequal spinules, the antennæ are relatively short, the pronotum has two sublateral discal punctures, one behind the other, and there are no sexual modifications of the abdominal apex. In the second group the four posterior tibiæ are densely fringed with short equal spinules, the antennæ are longer and heavier, the pronotum is entirely devoid of discal punctures, and the abdominal apex shows well marked modifications in the male.

One new Californian species belonging to the first group and two to the second are here described. *M. splendidus* has been taken at McCloud in Northern California by Dr. Fenyes. The Santa Cruz Mountains species referred to in my South California list as being near *splendidus* is included with *hospitalis* described below.

M. neotomæ n. sp.

Fusiform, piceous, prothorax and sometimes the head and abdominal apex rufous. Antennæ dusky, pale at base and apex, not passing the basal margin of the prothorax, gradually incrassate, the outer joints becoming transverse, the eleventh not quite as long as the two preced-

ing. Penultimate joint of maxillary palpi narrow, subparallel, nearly three times as long as wide. Head, including the mandibles, longer than wide, eyes moderate. Prothorax with two lateral discal punctures. Elytra a little wider than long, all the angles indefinitely paler, sutural stria distinct, each with a sutural, marginal, and three discal series of setigerous punctures, about ten punctures in each series except the outer discal one, which has only five or six, the first and second discal series more or less irregular. Abdomen moderately strongly punctate. Legs rufous, the thighs darker; middle and hind tibiæ fringed with unequal spinules. Length 3½–4 mm.

Pasadena, California.

Taken thus far only in wood rats' nests (April). In its three series of discal punctures on the elytra *neotomæ* most nearly agrees with *consors*, but the punctures of the two inner discal series are finer and more irregular than in *consors*, the body broader and the form of the penultimate joint of the maxillary palpi is longer and less triangular.

Consors is said by Horn to have two discal series of punctures on the elytra; there is, however, a distinct third row outside these which was mentioned by LeConte in his original description.

M. hospitalis n. sp.

Rather slender, entirely rufotestaceous, surface polished and strongly shining. Head as wide as or a little wider than long, impunctate; eyes moderate, the length of the head behind them subequal to that of the eye itself. Antennæ elongate, reaching the middle of the elytra when the head is deflexed, joints 7–10 subquadrate, the others more or less strongly elongate, terminal joint not quite as long as the two preceding together. Prothorax entirely without discal punctures. Elytra a little wider than long, without sutural stria, with three rows of setigerous punctures as usual, about six punctures in the sutural row, and eight in each of the others. Abdomen coarsely but not closely punctate; epipluræ impunctate, metasternum finely punctured; terminal spinules of the four posterior tibiæ of nearly equal length. Length 3 mm.

California.

Four examples taken by Dr. Fenyes in nest of wood rat (Neotoma) on Mt. Lowe (6000 feet) near Pasadena. With these are associated two examples from the Santa Cruz Mountains and Santa Clara County which appear to be structurally identical, but differ in having the prothorax and elytra pice-

ous in great part. The type above described is a ♂, having at the apical margin of the fifth ventral a group of asperate punctures bearing short stiff bristles, the sixth deeply triangularly emarginate at apex, and the seventh very narrowly but deeply triangularly incised. The short equal spinules of the posterior tibiæ associate this species with *splendidus* and *flavicollis*, with which it agrees also in the absence of all pronotal discal punctures. Dr. Horn intimates in his general remarks on *Mycetoporous* that there are in all species two discal punctures, one behind the other, between the middle and lateral margin. He either failed to observe or omitted to note that these punctures are not present in those species having the middle and hind tibiæ fringed with equal spinules. As remarked by Casey, LeConte's original descriptions were more precise in this respect. The absence of the sutural stria is peculiar to this and the following species, and there is little doubt from the appearance of the elytra that these species are truly apterous.

M. myops n. sp

Head, prothorax, and elytra piceous, highly polished, abdomen dark rufous, legs and antennæ pale rufous. Head longer than wide, eyes small, the distance from their posterior margin to the base of the head nearly twice the length of the eye. Antennæ distinctly shorter than in the related species, joints 6–10 evidently transverse, 11th as long as the two preceding. Prothorax without discal punctures, the two median ones of the basal margin more removed from the margin than usual, being nearly at the basal fourth. Elytra a little transverse, no sutural stria, with sutural series of four setigerous punctures, dorsal series of five or six, and marginal series of eight. Abdomen sparsely finely punctate. Length 2½ mm.

Fieldbrook, Northern California. (Mr. H. Barber.) Very closely allied to the preceding, differing in the smaller size, narrower head, smaller eyes, different position of the median marginal punctures at the base of the pronotum, and in the more finely sparsely punctured abdomen.

BLEDIUS Leach.

B. armatus Say.

There is in my collection a series of specimens from Nebraska—in part collected by Mr. Knaus—which agree perfectly with Say's description of this species, and are, I

think, unquestionably representatives of the species he had in hand. If so, the pale color as described by Say is normal and not due to immaturity as LeConte believed, and the true *armatus* is not at all the species accepted as such by that author, and following him by all our later Coleopterists. In genuine *armatus* the color is ordinarily pale yellow, the head, abdominal apex and sutural bead black or blackish; sometimes the prothorax and abdomen are of a darker shade than the elytra, but are never black. In *armatus* as defined by LeConte the body is black, the elytra varying from rufous to piceous, the abdominal apex paler. In this the hind angles of the prothorax are broadly rounded and undefined; in *armatus* they are distinct and slighty prominent. The *armatus* of LeConte is a common species, widely dispersed over the western United States, and naturally subjected to some variation, but I am thus far unable to find in a quite extensive material from different localities any satisfactory characters for specific separation. One of these local races served as the type for *strenuus* Csy., and this name should now be used for the species.

B. arizonensis n. sp.

Rather slender, black, or piceous black, trochanters and tarsi dark rufous, tibiæ more or less rufopiceous. Antennæ entirely black or piceous, second joint a little stouter and longer than the third, the latter twice as long as wide and subequal in length to the next two; outer joints gradually wider, 7–10 distinctly transverse. Head densely finely granulato-reticulate, a few fine and feeble punctures posteriorly, vertex with a feeble median tubercle divided by a short impressed line. Prothorax a little wider than the head, a little wider than long, sides parallel in apical two-thirds, then very broadly rounded into the base, the lateral and basal angles completely undefined, apical angles right but rather broadly rounded, surface granulato-reticulate and dull like that of the head; punctuation sparse, moderately coarse; median line strongly impressed. Elytra at base a little wider than long, sides nearly straight and evidently divergent, apical angles broadly rounded, surface shining, rather closely but not coarsely punctate. Abdomen finely reticulate and sparsely finely punctate above, more closely punctate beneath, with very fine reticulato-rugulose ground sculpture. Hypomera vaguely concave posteriorly, not impressed along the outer margin, the width at apex about half that at base, which is subequal to the length of the coxal fissures, the latter almost completely closed. Length 4.3–4.9 mm.

Flagstaff, Arizona. (Dr. Fenyes.)

The epistomal angles are evidently but not strongly tuberculate in much the same degree in the eight specimens before me, all of which appear to be female by the structure of the eighth ventral. This species is to be referred to the *armatus* group of LeConte, and is apparently nearer to *strenuus* (*armatus* Lec, not Say) than to any other of the group. In *strenuus* the head is relatively narrower as compared with the prothorax, the size distinctly larger, the color never as nearly black, the legs, antennæ and abdominal apex invariably paler.

B. episcopalis n. sp.

Black, elytra and legs bright rufous, the latter gradually narrowly infuscate at base, front coxæ darker. Antennæ rufous basally, blackish outwardly, second joint distinctly longer and stouter than the third, barely as long as the third and fourth together, penultimate joints quite strongly transverse. Head very slightly narrower than the prothorax, finely granulose and dull, with a few fine scattered punctures and a rather strong impressed vertical tubercle; epistomal suture arcuate, distinctly impressed, anterior angles of epistoma tuberculate, antennal prominences strong. Prothorax a little wider than long, sides almost perfectly straight and parallel for three-fourths their length, then rather suddenly convergent and feebly arcuate to base, the base angles very obtuse and indistinct but traceable; surface finely granulato-reticulate and somewhat shining, median line well impressed, punctures rather fine and sparse. Elytra just visibly wider at base than the prothorax, scarcely as long as wide, about one-fifth longer than the prothorax, sides moderately divergent, punctures more closely placed than on the prothorax, being separated by about their own diameters. Abdomen very remotely finely punctate above, less sparsely so beneath. Prosternal sutures obliterated, the hypomera very little narrowed in front, impressed along the side margin, coxal fissures about as long as the adjacent width of the hypomera, apparently closed or very nearly so when viewed from the side, narrowly open when viewed from the front. Mentum concave, more deeply so basally, shining, lightly reticulate. Length 3.6–4.3 mm.

Bishop, California. (Dr. Fenyes.)

A member of the *armatus* group, differing from the other species of like size by the strongly tuberculate head in the male.

B. gradatus n. sp.

Black, prothorax reddish brown, elytra paler rufous, abdomen rufescent at apex, legs bright rufous, antennæ rufous at base, dusky toward the apex. Antennæ gradually incrassate, joints 6–10 increas-

ingly transverse, 2–3 subequal and fully twice as long as wide, each nearly equal to 4–5 together. Eyes very convex. Head not as wide as the prothorax, finely granulato-reticulate and feebly shining, vertex with a prominent divided tubercle, exterior to which are a few punctures; anterior angles of epistoma strongly tuberculate in the male, epistomal suture strong, arcuate. Prothorax barely one-fifth wider than long, sides parallel and nearly straight for three-fourths their length, then strongly arcuately convergent and rounded into the base, the hind angles undefined, the front angles narrowly rounded; surface shining, finely granulato-reticulate and rather coarsely punctate, the punctures separated by from one to one and one-half times their own diameters; median line sharply impressed throughout. Elytra at base equal in width to the prothorax, as wide at apex as the sutural length, sides straight and a little divergent behind, surface moderately shining, as coarsely but slightly less densely punctate than the prothorax. Abdomen slightly narrower than the elytra at base, slightly increasing in width apically, above finely reticulate, moderately shining, very sparsely feebly punctate; beneath numerously rather finely punctate, the interspaces very finely punctulate rather than reticulate. Hypomera flat, a little narrowed anteriorly, coxal fissures narrowly open, prosternal sutures obliterated but traceable. Length, 5.2–5.5 mm.; width, 1.2–1.35 mm.

California. Desert region near Keeler, collected by Dr. Fenyes.

This species seems closely related to *eximius* Csy., in which, however, the vertex is not evidently tuberculate, the color and some other details somewhat different. It resembles *flavipennis* Lec. also, but the latter has the prothorax very lightly punctate, the median impressed line feeble.

B. consimilis n. sp.

Head and abdomen black, prothorax rufo-piceous, elytra yellowish with the suture and base narrowly dusky, legs and antennæ flavo-testaceous. Head and prothorax finely granulato-reticulate, and feebly shining, elytra distinctly finely reticulate, moderately shining, abdomen reticulate, moderately shining. Second antennal joint evidently stouter and a little longer than the third, but much shorter than the next two together; tenth joint about one-half wider than long. Head (♂) impunctate with a small but distinct impressed vertical tubercle; antennal prominences strong, epistomal angles strongly but finely tuberculate, epistomal suture strongly impressed. Prothorax slightly wider than the head, a little wider than long, sides parallel and very broadly arcuate for three-fourths their length then arcuately narrowed

almost to the base, the hind angles a little prominent, slightly obtuse, not rounded, the outer sides parallel for a short distance; apical angles slightly obtuse and narrowly rounded; surface very sparsely irreguarly punctate, the median impressed line very indistinct and incomplete. Elytra a little longer than the prothorax, nearly as long as wide, at base just visibly wider than the prothorax, sides slightly divergent, conjointly broadly angulate emarginate at apex, the sutural angles very narrowly rounded; punctuation rather strong and close. Abdomen with a few scattered fine punctures above, beneath sparsely finely punctate. Prosternal sutures obsolete, hypomera strongly narrowly impressed along the outer margin, within the impression feebly convex, strongly narrowed in front, the width at apex being but little more than half that at base, where it is nearly twice as great as the distance to the coxæ; coxal fissures short, rather narrowly open. Length 4.1 mm.

Thorton, New Mexico. (Dr. Fenyes.)

This species is from description closely related to *cuspidatus* and *tenuis*. The former is considerably larger (5.5 mm.), the head is said to have a large vertical fovea, and the hind angles of the prothorax are wanting.

Tenuis agrees more nearly in size (4.5 mm.), and has the hind angles of the prothorax minutely prominent, but the epistomal suture is feebly impressed and the vertex not tuberculate.

B. tallaci n. sp.

Black, elytra dark red-brown, feebly clouded with piceous at base, abdominal apex narrowly paler, legs rufous. Head and prothorax densely strongly granulato-reticulate, the former dull, the latter very feebly shining; elytra polished; abdomen distinctly reticulate, moderately strongly shining. Antennæ rufous at base, darker externally; second and third joints subequal, tenth as long as wide. Head finely, sparsely, obsoletely punctate at sides posteriorly, occipital fovea small, the surface in front of it faintly tumid; epistomal suture fine, scarcely impressed, the anterior angles of epistoma finely tuberculate. Eyes rather large and prominent. Prothorax a little wider than the head, one-seventh wider than long, sides straight and parallel from apical fifth to three-fifths, convergent and nearly straight behind, the lateral angles somewhat evident, the basal ones rounded and indistinct, sides rounded in front, the apical angles obtuse and narrowly rounded; median line deeply impressed, punctuation rather close and coarse. Elytra at base slightly, near the apex one-fourth wider than the prothorax, the suture slightly longer, the maximum length three-sevenths longer than the prothorax, very little wider than long, punctuation

close and even. Abdomen sparsely finely punctate above, more conspicuously so beneath. Prosternal sutures prominent, the hypomera nearly flat, feebly impressed at sides, about one-half as wide at apex as at the coxal fissures, which are closed and just perceptibly shorter than the adjacent hypomeral width. Length 4.9 mm.

Lake Tahoe (Tallac), Calif. Collected by Dr. Fenyes.

The type is a male having the sixth ventral broadly but distinctly emarginate in circular arc, the surface near the margin bearing numerous yellow setæ which are longer at sides. In the modification of the sixth ventral of the male *tallaci* agrees with *grividus* Csy. which is differently colored, has the pronotum in part polished, the tenth antennal joint transverse, and thc prothorax sparsely and unevenly punctate. A male specimen in my collection from Lake County, California, is quite surely Casey's *foraminosus*, which was described from the female. In this male the sixth ventral is setiferous posteriorly, but the segment is scarcely perceptibly emarginate. Very closely allied are *deceptivus* Fall, and *relictus* Fall, the sixth ventral of the male in both of these being precisely as in *foraminosus*.

B. dissimilis n. sp.

Black, elytra rufo-ferruginous, with the base and suture dusky, antennæ, legs and abdominal apex rufous. Head and thorax densely granulato-reticulate, the former dull, the latter feebly shining, abdomen feebly reticulate and shining, elytra polished. Second antennal joint a little stouter and slightly longer than the third, the latter three-fourths longer than the fourth, penultimate joints a little wider than long. Head distinctly but sparsely and rather finely punctate, vertex feebly tumid at middle, behind which is a more or less distinct fovea; epistomal angles feebly finely tuberculate, suture fine and distinct but scarcely impressed. Prothorax evidently wider than long, sides parallel and slightly arcuate in apical three-fourths, then broadly rounded and convergent at base, the base angles rounded and not defined; dorsal line fine but distinctly impressed, the punctures moderate in size, separated by about their own diameters. Elytra at base scarcely wider than the prothorax, nearly as long as wide, sides moderately divergent, punctuation rather close and well impressed. Abdomen gradually notably wider behind, finely sparsely punctate, beneath more evidently so. Prosternal sutures distinct, oblique, hypomera nearly flat, rather feebly impressed along the outer margin, the width at apex about half that at the coxal fissures, the latter closed and a little shorter than the adjacent hypomeral width. Length 3.6–4.2 mm.

Philadelphia, Pennsylvania. Two examples so labeled in Dr. Fenyes' collection.

The type is a male having the posterior margin of the sixth ventral obliquely beveled in its middle third; the beveled area apparently membranous, about four times as wide as long, arcuate in front, nearly straight behind. This species resembles *semiferrugineus* but is somewhat smaller, with much less coarsely punctate head and thorax. *Gravidus* agrees well in most respects but it too is larger, the abdomen is said to be parallel, and the sexual characters are quite different.

B. piceus n. sp.

Black, prothorax piceous, tip of abdomen, legs and antennæ rufous, the latter slightly dusky apically. Head and prothorax densely finely granulato-reticulate, the former dull, the latter feebly shining; elytra shining, abdomen finely reticulate and shining. Second antennal joint about one-half longer than the third and not very much shorter than the third and fourth together, tenth nearly one-half wider than long. Head with a few fine and feeble widely scattered punctures posteriorly, vertex evenly broadly convex, the occipital puncture small; epistoma simple (♀), suture fine, somewhat impressed; eyes rather small and not very prominent. Prothorax very slightly wider than the head, not much wider than long, sides straight and parallel in apical three-fourths, thence convergent and straight to base; lateral angles very obtuse but distinct, basal angles less obtuse and not well defined, apical right and rather narrowly rounded; punctuation fine and sparse, median line fine but well impressed. Elytra scarcely wider at base than the prothorax, as long as wide, the sutural length subequal to that of the prothorax, sides a little divergent, punctuation rather close, the punctures moderate in size. Abdomen gradually wider posteriorly, finely very sparsely punctate above, rather coarsely and much more closely so beneath, especially toward the base. Prosternal sutures distinct and moderately oblique, the hypomera evidently impressed along the outer margin; coxal fissures a little shorter than the adjacent hypomeral width, almost completely closed. Length 3.9 mm.

California—Pasadena and Oceanside (Fenyes). A specimen from Colorado collected by Prof. C. F. Baker is apparently identical.

A somewhat small and inconspicuous species belonging to the *semiferrugineus* group, to none of the members of which it seems very closely related. In general appearance it is

not greatly unlike *assimilis*, but in the latter the prothorax is distinctly smaller, the dorsal line obsolete, the punctuation closer and the tenth antennal joint is not transverse.

B. specularis n. sp.

Head and abdomen piceous, prothorax and elytra dark castaneous, the latter broadly suffusedly blackish along the base and suture; legs and antennæ rufous, the latter a little darker apically. Upper surface strongly shining, the head very evidently so although distinctly granulato-reticulate; prothorax finely subobsoletely reticulate laterally, becoming quite smooth toward the middle of the disk; elytra polished, abdomen finely reticulate. Eyes only moderately prominent. Antennal joints 2–3–4 gradually decreasing in length, tenth a little transverse. Head impunctate except for the occipital puncture, before which the vertex is distinctly tumid; epistomal margin minutely tuberculate each side, the frontal suture somewhat impressed. Prothorax distinctly wider than the head, nearly as long as wide, sides very broadly arcuate and parallel in rather more than apical three-fifths, then convergent and feebly undulate to base, the lateral angles rather distinct, basal angles scarcely defined, median line fine and lightly impressed, punctuation very sparse, the sides rather broadly subimpunctate. Elytra a little wider than the prothorax, fully as long as wide, very slightly widened behind, punctuation sparse, deep, and coarse. Abdomen finely very sparsely punctate above, beneath much more coarsely and closely so. Hypomera not strongly narrowed in front, distinctly impressed along the outer margin, the prosternal sutures distinct; coxal fissures closed and about as long as the adjacent hypomeral width, mentum rather strongly and broadly concave. Length 4.3 mm.

California. Two examples collected by Dr. Fenyes at Point Reyes.

This species belongs to the *semiferrugineus* group, but does not closely resemble any previously described. It is very close to the following one, and the two may be only varietal forms of one species.

B. regularis n. sp.

Very closely allied to the preceding in all respects except the following. The vertical tumidity is very faint, occipital puncture very small or obsolete, pronotum strongly granulate-reticulate throughout and much less shining, the median line finer, the punctuation less sparse toward the side margin, elytra a little more closely punctured.

California—Cole. Siskiyou County, six examples collected by Dr. Fenyes.

This species comes from the interior of the extreme northern part of the State, close to the Oregon line, while *specularis* occurs near the coast just north of San Francisco. These two forms have probably diverged in comparatively recent times, but seem fairly well differentiated, and if not already distinct are quite sure to become so. The two specimens of *specularis* known are both females, and have the epistomal margin simple or very nearly so. The type of *regularis* is a male, having the epistoma distinctly tuberculate each side, the female having the epistoma simple. *Piceus* is also allied to these, but differs in its smaller elytra, which are also more closely punctate.

B. persimilis n. sp.

Black, legs and antennæ rufotestaceous, the penultimate joints of the latter just perceptibly darker. Head and prothorax very finely granulato-reticulate, the former feebly, the latter quite evidently shining; elytra polished, abdomen very indistinctly though rather coarsely reticulate and strongly shining. Second antennal joint nearly as long as the next two, the fourth as wide as long, fifth evidently transverse, tenth twice as wide as long, eleventh subequal in length to the two preceding. Eyes not very prominent. Head nearly evenly convex, almost impunctate, occipital fovea small but distinct, epistomal suture very fine, not impressed. Prothorax slightly wider than the head, a little wider than long, sides nearly straight and parallel in apical three-fifths, thence straight and just perceptibly sinuate to the hind angles, which are obtuse, well defined but not prominent, lateral angles somewhat defined, median line prominent, lateral angles somewhat defined, median line fine but well impressed, punctuation rather fine, moderately sparse. Elytra at base very slightly wider, and at apex about one-fifth wider than the prothorax, about one-third longer than the latter, sides feebly divergent, punctuation close and rather fine. Abdomen sparsely finely punctate, beneath more closely and less finely so. Prosternal sutures strong, parallel with the margin, hypomera flat, not perceptibly impressed along the side margin, slightly narrowed at the coxal fissures, which are open and about twice as long as the adjacent hypomeral width. Mentum with a well defined transversely oval impresion occupying the basal three-fifths and the middle two-fourths. Length 2.5–2.7 mm.

California—Pomona (type), Santa Clara County. Four examples.

This species is evidently very closely allied to Casey's *gentilis* and *gracilis*, but differs from each in several details. In *gracilis* the median groove of the pronotum is said to be very wide, deep and conspicuous, the second joint of the antennæ much longer than the next two and the mentum not impressed. In *gentilis* the size is somewhat greater, the antennæ are in great part black, the occipital fovea lacking, the elytra relatively both wider and longer than in *persimilis*, the hypomera only one-third as wide as their distance from the coxæ.

B. mysticus n. sp.

Rather robust, black, legs and basal two joints of antennæ rufous. Head and prothorax densely granulose and dull, elytra and abdomen polished and strongly shining, the latter finely reticulate. Second antennal joint nearly as long as the next two, tenth nearly twice as wide as long. Head broadly convex, a transverse almost entire impressed occipital line, which deepens into a foveiform impression at middle; epistomal suture fine, not impressed, punctuation fine, sparse, shallow. Prothorax a little wider than the head, somewhat transverse, sides broadly arcuate in front, the curvature continuous but stronger posteriorly, hind angles rather abruptly formed, fairly well defined, short, and but little obtuse; front angles a little obtuse and narrowly rounded; median line fine, lightly impressed, very slightly abbreviated in front; punctuation rather fine, uniformly distributed, except as usual along the median line, the punctures nearly twice their own diameters apart. Elytra about as long as wide, fully one-third longer than the prothorax, sides feebly divergent to apex, surface moderately closely and strongly punctate. Abdomen finely very remotely punctate above, a little less sparsely so beneath. Hypomera about two-fifths as wide as their distance from the coxæ, a little narrowed anteriorly, concave posteriorly; the prosternal sutures distinct; coxal fissures long, open, the surface immediately in front of them transversely impreseed. Mentum broadly evenly concave, reticulate and shining. Length 3.6–4 mm.

Washington (State)—type; Kalispell, Montana (Wickham).

This species belongs to LeConte's *annularis* group, and judging from description is allied in a general way to *sinuatus*, which differs in color and is said to have the median impressed line of the prothorax nearly obsolete. *Monticola*, *gentilis* and *gracilis* of Casey are also related, but are all too

small, and each differs in several details. *Languidus* Csy., is still nearer, but the head is said to be not foveate, the elytra are piceous and the prosternal sutures feeble and indistinct.

B. apicalis n. sp.

Black, elytra piceous with the sides posteriorly and the apex gradually changing to yellowish-brown, legs and antennæ rufous. Head and prothorax densely finely granulato-reticulate and dull; elytra not reticulate, moderately shining, abdomen very finely feebly reticulate and quite strongly shining. Antennæ moderately incrassate, joints 2–3–4 gradually shorter, the second slightly thicker than the third and about one-third longer, fifth barely as wide as long, sixth a little transverse, tenth one-third wider than long, eleventh not quite as long as the two preceding. Head distinctly but not deeply or closely punctate posteriorly, vertex not evidently tuberculate, occipital fovea small; frontal suture fine, slightly impressed, epistomal margin finely tuberculate each side; eyes strongly prominent. Prothorax a little wider than the head, rather strongly transverse, sides parallel and distinctly arcuate in apical three-fifths, then covergent and rather strongly sinuate to base, the base angles a little obtuse, with narrowly rounded vertices, apical angles quite sharply defined; dorsal line fine, feebly impressed, subobsolete for a short distance at its extremities; punctuation fine, moderately close. Elytra about as long as wide, at base evidently wider than the prothorox, sides diverging a little to apex, rather densely finely punctate. Abdomen finely sparsely punctate above, beneath more closely and less finely so. Hypomera narrow, feebly impressed along the outer margin, a little narrowed at the coxal fissures, where the width is only about one-third the distance to the coxæ; fissures long and widely open. Mentum large, broadly feebly impressed longitudinally, the impression not deeper posteriorly. Length 5 mm.

California (Raymond). Four examples collected by Dr. Fenyes.

Allied to *ruficornis*, but larger and broader, the anterior thoracic angles more prominent and the antennæ less dark externally, the mentum nearly flat. In *ruficornis* the seventh ventral is produced at middle as usual in a more or less pointed cuspiform lobe; in *apicalis* the lobe is rather widely truncato-emarginate.

B. fratellus n. sp.

Very similar to *ruficornis*, differing as follows:

The size is uniformly smaller, the length varying from 3

to 3.3 mm. in the seven specimens at hand. The head and prothorax are densely granulato-reticulate, but more finely so and less dull than in *ruficornis;* the elytra piceous, becoming narrowly and rather abruptly yellowish-brown at apex. The outer joints of the antennæ are more strongly transverse, the tenth very nearly twice as wide as long.

California, Pasadena (type); Cole. Siskiyou County (Dr. Fenyes).

Adustus Csy., from Colorado, must be much like the present series, but according to description is more lightly and sparsely punctate.

B. medialis n. sp.

Black, elytra yellow with a broad fuscous sutural stripe; abdomen black above, rufopiceous beneath, legs yellow. Antennæ brown, paler at base, second joint slightly thicker than and barely as long as the next two, tenth two-thirds wider than long, eleventh nearly as long as the two preceding. Head and prothorax finely granulate and feebly shining, elytra and abdomen shining, the latter very feebly reticulate. Head evenly convex, epistomal suture very fine, not impressed, surface with a few scattered indistinct punctures and a small punctiform occipital fovea. Prothorax slightly wider than the head and a little wider than long, sides feebly arcuate, subparallel or a little divergent from the apex to the middle, then rounded, convergent and a littie sinuate to base angles, the latter obtuse but well defined; front angles very narrowly rounded and nearly rectangular; median impressed line fine, entire; punctuation fine and rather sparse. Elytra a little wider at base than the prothorax, about as long as wide, very slightly wider apically, rather closely and moderately strongly punctate. Abdomen very finely and remotely punctate above, less sparsely so beneath. Hypomera nearly flat, very feebly depressed, parallel scarcely more than one-half as wide as their distance from the coxæ; prosternal sutures represented by a fine but prominent raised line; coxal fissures open. Mentum broadly concave, with or without a deeper rounded median impression. Length 3.1–3.4 mm.

Vancouver Island. Three examples.

Most nearly allied to *suturalis*, in which, according to description the mentum is flat and the prothoracic epistoma concave. These differences are slight probably and may be entirely due to slight individual variations, or to lack of precise description. I have, however, compared with the type of *suturalis*, and judged the present species distinct, but find no notes as to the differential characters.

B. confinis n. sp.

Head black, prothorax brown, elytra pale yellowish testaceous, the sutural edge darker except toward the apex, abdomen brownish piceous with the tip gradually a little paler, legs and antennæ testaceous; surface rather dull, the abdomen more shining, antennæ short, penultimate joints rather strongly transverse, second slightly longer than the next two. Front evenly convex, epistomal suture very fine, not distinctly impressed; surface very finely sparsely punctate. Prothorax a little wider than the head, evidently transverse, sides parallel and broadly arcuate for three-fourths their length, then rather suddenly rounded and sinuately convergent to base, the base angles rounded and indistinct, the apical angles sharply defined and nearly rectangular; surface minutely sparsely punctate, median line fine, scarcely impressed. Elytra at base just visibly wider than the prothorax, two-thirds longer, sides slightly divergent, finely, feebly, not closely punctate. Abdomen minutely reticulate but shining, punctuation very fine and remote. Prosternal sutures obliterated, the hypomera wide, but little narrowed in front, at base twice as wide as the length of the coxal fissures, which are completely closed. Length 2.2 mm.

El Paso, Texas. A single female specimen taken by the writer.

The mentum is broadly concave, with an indefinite and feeble longitudinal sublinear impression at middle. This species is to be referred to the *cordatus* group, and differs from *basalis* by the smaller prothorax, which is sinuately narrowed behind, more ample elytra—which are entirely yellow—and differently sculptured mentum.

APLODERUS Steph.

The two following species belong to Casey's Group I., distinguished by the front coxal cavities being very large and extending to within a short distance of the lateral edge of the prothorax.

A. trinifer n. sp.

Head and abdomen black, the extreme apex of the latter paler, prothorax rufous or castaneus, elytra flavate with the scutellar region and outer apical angles more or less infuscate; legs and base of antennæ rufo-testaceous, joints 4–11 of the latter piceous or rufo-piceous. Head as wide as the prothorax, eyes moderately large, their length subequal to their distance from the nuchal constriction, tempora posteriorly as prominent as the eyes; basal joint of antennæ about as long as the next three. Prothorax widest and subangularly rounded at about the

apical third, thence convergent and nearly straight to the hind angles, which are very obtuse but somewhat defined; surface sculpture as uaual. Elytra not quite one-half longer, and at base just visibly wider than the prothorax, slightly wider behind, rather coarsely punctate. Abdomen sparsely punctate. Length 2.4–3. mm.

Male.—Sixth ventral segment not distinctly modified, the punctures but little finer and closer than on the preceding segment; seventh segment with a broad very short rounded lobe-like prominence at middle.

Female.—Head a little smaller than in the male, sixth ventral with the usual long and narrowly rounded median lobe.

Southern California—Pomona (type), Pasadena, Ojai.

Differs from the other members of this group by the simple sixth ventral of the male and the trimaculate elytra.

A. mimeticus n. sp.

Almost precisely similar in appearance to the preceding except that the elytra are uniformly flavate, and the size averages a little smaller. The sixth ventral of the male is flattened and rather densely punctate and pubescent at middle as in *linearis*, but the seventh is not in the least produced as it is in the latter species, which is also rather larger and normally darker in color. Length 2.–2.6 mm.

Pomona, California—six examples.

A. princeps Csy.

A male specimen in my collection from Tulare County, California, possesses exactly the remarkable sexual characters of this species as described by Casey; it is, however, entirely blackish, the elytra just perceptibly paler piceo-castaneous. The type is described as pale flavate, and is probably immature.

DELEASTER Er.

D. trimaculatus n. sp.

Similar to *concolor* in size and other characters, except as follows: Head blackish, prothorax and abdomen posteriorly more or less darker than the elytra, the latter with a scutellar spot and the apex—more broadly toward the sides—piceous. Antennæ more elongate, the outer joints longer, the tenth one-half wider than long; elytra slightly wider than long, very finely rather closely punctate, alutaceous and dull.

Cañon City, Colorado. Three examples.

In *concolor*, as represented by a Vancouver specimen in my collection, the color is nearly uniform throughout, the outer joints of the antennæ are but little longer than wide, elytra slightly longer than wide, less finely and closely punctate and more shining.

SCAPHIDIIDÆ.

BÆOCERA Er.

B. humeralis n. sp.

Rather narrowly oval, blackish, elytra gradually rufescent at apex, the humeri rufous; antennæ pale, the outer joints dusky; legs rufous; abdomen rufescent at extreme apex. Integuments highly polished, elytra remotely obsoletely punctulate, elsewhere impunctate. Antennæ subequal in length to the head and prothorax, joints 3, 4 and 6 subequal and about three times as long as wide; 5 slightly longer; 7–11 gradually wider and pubescent, 9 more abruptly wider when viewed on the compressed side; joints nearly symmetrical. Prothorax about $\frac{1}{3}$ wider than long, hind angles acute and a little deflexed. Scutellum rather large, transverse. Elytra $\frac{2}{3}$ longer than the prothorax and about $\frac{1}{6}$ longer than wide; basal stria entire but very fine exteriorly; humeral spot reaching half way to the suture, not very sharply defined. Mesepimera extending $\frac{2}{3}$ to the coxæ; metepisterna very narrow, punctures along the hind margin of the middle and hind coxæ small. Length, 1.7 mm.; width, 1 mm.

Tacoma, Wash. (type); Flagstaff, Arizona. This species seems most closely allied to *texana* in size, well developed scutellum, and entire basal stria of elytra. It differs distinctly in color, shorter mesepimera and finer post-coxal punctures.

SCAPHISOMA Leach.

S. dakotana n. sp.

Moderately robust, polished, piceo-castaneous, the elytra gradually varying from castaneous at base to rufous at apex; head, legs and under surface pale, the metasternum blackish. Antennæ fully as long as the head and prothorax; joint 3 triangular, slightly longer than wide; 4 twice as long as 3 and rather less than three times as long as wide; 5 as long as 3 and 4 together, and more than three times as long as wide; 6 about one-third longer than 5, evidently dilated internally and with erect pubescence. Prothorax one-half wider than long, minutely sparsely lightly punctulate. Scutellum distinct. Elytra about one-sixth wider than their sutural length, sutural stria strong, basal stria extending to the middle on one side and nearly to the

humeral umbone on the other; punctuation well defined and rather close, moderately coarse at apex, becoming finer basally. Mesepimera reaching two-fifths to coxæ; metasternum punctate at middle, smooth at sides; abdomen finely alutaceous apically, less evidently so and finely punctulate basally. Post-coxal plate of first ventral barely extending one-fourth the length of the segment. Legs very slender, basal joint of hind tarsus fully as long as the next two. Length 2.7 mm. to the end of the somewhat extended abdomen; width 1.4 mm.

Bismarck, N. Dak. (Wickham).

Closely related to *punctulata* by its unusually closely punctured elytra, but the latter species is rather more slender, black, the apical bead of the elytra only paler, the mesepimera extending three-fifths to coxæ, the metasternum more punctate at sides.

S. semiopaca n. sp.

Moderately broadly oval, piceous black, head, antennæ, legs and abdomen in great part rufous. Prothorax black, highly polished and impunctate; elytra diffusedly pale at base, the apex more distinctly narrowly so; surface minutely alutaceous and dull, with sparse minute punctures from which rise very fine hairs. Antennæ about as long as the head and prothorax, third joint slightly longer than wide, fourth and fifth subequal, each nearly three times as long as the third and fully four times as long as wide; sixth slightly longer than the fifth, but not quite as long as the seventh. Prothorax one-half wider than long, hind angles moderately produced. Scutellum small, equilateral. Elytra not quite as long as wide, basal stria wanting, the sutural stria merely turned outward a little at base. Beneath nearly impunctate, a few very minute punctures on the first ventral segment. Mesepimera extending two-fifths to the coxæ; post coxal plate of first ventral very short, extending less than one-third the length of the segment. Legs slender, basal joint of hind tarsus just visibly longer than the next two together. Length, 2.2 mm.; width, 1.4 mm.

Texas (Luling). A single example taken by the writer.

The minutely sculptured and dull elytra at once distinguish this species from any previously described.

S. ornata n. sp.

Black, elytra each with an antemedian subtriangular discal spot rufous, and the apical third or fourth paler; legs, antennæ, abdominal apex and middle of ventral surface pale. Antennæ about as long as the head and thorax, third joint triangular, as wide as long; fourth twice as long as the third or slightly more, fifth and sixth subequal in

length, as long as the third and fourth together, the fifth about five times as long as wide, sixth arcuately dilated internally; seventh longer, eighth shorter and narrower than adjacent joints. Prothorax two-thirds wider than long, minutely punctulate, hind angles acute and moderately produced. Scutellum minute, equilateral. Elytra rather numerously and distinctly punctate; sutural stria fine, not flexed outwardly at base. Beneath impunctate; mesepimera extending two-thirds to coxæ, metepisternal suture distinctly oblique; post coxal plates well developed, subparabolic in outline, that of the firsf ventral two-fifths as long as the segment, more oblique externally. Hind tarsi nearly or quite as long as the tibiæ, basal joint quite as long as the next two. Length, 1.5 mm.; width, .9 mm.

Mobile, Alabama. Eight examples very kindly given me by Mr. Löding.

According to Mr. Löding's labels specimens were taken in fungus on oak and under bark. This is quite the prettiest species of the genus, and the only one thus far known in our fauna with elytral maculation. The post-coxal plates are better developed than usual, but not more so than in *evanescens*, which it should follow in Casey's table.

S. terminata Melsh.

Opportunity is here taken to call attention to an erroneous statement in Casey's Revision of the Scaphidiidæ with regard to the antennal structure in this species. The sixth antennal joint is there said to be "distinctly longer than the third, fourth and fifth combined," whereas an examination of typical examples in the LeConte and Melsheimer collections show that the fifth and sixth joints are subequal, the latter much shorter than 3–5 united. The metasternum is also finely and sparsely punctate, and the length is 1.5 mm. instead of metasternum coarsely punctured and length 1.8 mm. as stated by Casey, who evidently had something quite different in hand. The true *terminata* will retain its position in the table next to *evanescens*, but just what differential characters should be given to separate these two I am now unable to say. In its strongly developed post-coxal plates and posteriorly very broad metepesterna with strongly oblique suture *evanescens* possesses two very unusual characters, and it is highly probable that it differs in one if not in both respects from *terminata*.

S. pusilla Lec.

Here again Casey is in error in stating that the post-coxal plates of the first ventral extend "much beyond the middle of the segment." Specimens from North Carolina, Virginia and Massachusetts in Mr. Blanchard's and my own collection agree in all essential characters with the LeConte types of *pusilla*, and like the type, all have the abdominal plates a little less than half as long as the basal segment, as is described of Casey's *dimidiata* from Rock Island. There can be no doubt of the identity of the latter with *pusilla*. The erection of a new genus—*Scaphiomicrus*—for this and other possibly distinct species of small size appears to me unnecessary.

S. apicale Horn.

The descriptions of this species and of *peninsularis* by Horn in the "Coleoptera of Baja California" are too brief to permit a very satisfactory comparison with the previously known species as arranged by Casey, whose descriptions are very carefully drawn, and whose work on this family is on the whole deserving of much praise. *Peninsularis* is unknown to me, but a specimen of *apicale* obtained some years ago from Mr. Fuchs enables me to add some details which will be of use to the student for comparative purposes. With the exception of the head and propleuræ the insect is finely punctulate throughout, the upper surface more closely so however. The head is very minutely and remotely punctulate, the propleuræ impunctate. The sides of the mesosternum are sparsely punctulate, and the ventral surface is distinctly alutaceous throughout, both very unusual characters. The antennal structure is in some respects unique. The third joint is triangular, as wide as long, fourth cylindrical, less than twice as long as wide and barely one-half longer than the third; fifth and sixth each nearly twice as long as the third and fourth together. The pubescence begins on the fifth joint, but this and the sixth are only slightly dilated internally; the seventh quite strongly asymmetric. Scutellum small, equilateral. Mesipimera reaching

just visibly more than half way to the coxæ; metepisternal suture straight and strongly oblique; post-coxal arcs of first ventral about one-fourth the length of the segment.

HISTERIDÆ.

HISTER.

H. temporalis n. sp.

Broadly oval, black, highly polished. Prothorax strongly narrowed in front, sides nearly straight, inner marginal stria entire, outer abbreviated at apical two-fifths, surface very remotely and minutely punctulate toward the sides. Elytra with four entire dorsal striæ, fifth wanting, sutural represented by a few subconfluent punctures just behind the middle; oblique humeral very fine, subhumeral entirely wanting. Pygidium and propygidium similarly rather coarsely, closely punctate, the latter narrowly smooth at base, the former more broadly smooth at apex. Prosternum finely bistriate, the striæ divergent at base, then parallel, their tips bent inward; mesosternum moderately emarginate in front. Anterior tibiæ with four small teeth, the apical one double. Length from the apical margin of the prothorax to the sutural angle 4.5 mm; width, 3.8 mm.

Arizona (Baboquivaria Mountains—Snow).

This species is by the prosternal striæ allied to *servus*, *indistinctus* and *defectus*. The two former have the outer thoracic stria entire. *Defectus* has the prosternal striæ divergent in front and the pygidium nearly smooth. All three are considerably smaller than the present species—3–3.5 mm.—according to Horn's measurements. This may perhaps be the form for which Dr. Sharp suggests the name *Comes* in the Biologia, but as his description is limited to the statement that it is larger than *servus*, and with no scutellar stria I can do no more than suggest the possible identity of the Mexican species with the one here described.

H. humilis n. sp.

Broadly oblong oval, black, shining, prothorax and elytra impunctate. Prothorax moderately narrowed in front, the sides continuous with those of the elytra, very broadly arcuate, outer stria abbreviated, apical, inner stria entire. Elytra with three entire striæ, the fourth apical, consisting of three or four disconnected punctures, fifth wanting, sutural extending from the apex to the basal fourth; subhumeral striæ absent. Propygidium and pygidium alutaceous and dull, moderately coarsely and closely punctate, the bottom of the punctures shining; pygidium smooth at apex. Anterior tibiæ rather feebly serratodentate. Length 3.5 mm.

Arizona (Cochise County).

Form and size of *militaris*, to which it is closely related. In the latter the elytra are in great part red, and the propygidium is less closely punctate.

H. gagates n. sp.

Broadly oblong oval, black, polished, prothorax and elytra very minutely and sparsely punctulate. Outer thoracic stria interrupted for a greater or less distance at middle. Elytra with all the dorsal striæ entire, the fifth slightly shorter, recurved and joining the sutural; no subhumeral stria. Propygidium moderately coarsely not densely punctate; pygidium more finely and less closely punctured. Length, 3–3.3 mm.; width, 2.6–2.8 mm.

Lake Tahoe, California (type); Spokane, Wash.

In the type the outer prothoracic stria reaches the apical third, and there is a very short detached basal stria; in the Spokane example the stria is narrowly interrupted behind the middle. This is a near ally of *americanus*, but is distinctly narrower and more oblong, the pygidium much more evidently punctate apically.

NITIDULIDÆ.

CARPOPHILUS Steph.

In his treatment of this genus in the "Biologia" Dr. Sharp has called attention to the presence in certain species of an oblique raised line cutting off the anterior angle of the metasternum. This line is really a backward production of the anterior marginal raised edge of the metasternum. In the greater number of our species the line is strictly marginal throughout, reaching the episternal suture at the anterior angles of the metasternum. In a few, *e. g.*, *yuccæ* and *tempestivus*, it arches backwards just within the angle; in *dimidiatus* and *floridanus* n. sp., the flexure is more evident; in *marginatus* and *antiquus* it leaves the front margin at a greater distance from the angle, and approaches the episternal suture at its anterior third; in *mutilatus* and *luridus* at the anterior two-fifths, and in *nitens* n. sp., at about the middle, the front angles of the metasternum being in this case very widely truncate. The corner of the metasternum

cut off by the oblique line seems always to be devoid of punctures.

A second character used by Sharp in grouping the Mexican species is the presence of a marginal fringe of short ciliæ at the sides of the prothorax and elytra. Four species of the Mexican fauna possess this character according to Sharp, viz.—*pallipennis*, *floralis*, *canescens* and *longiventris*. All of these but *canescens* occur within our faunal limits, and to these we may add *hemipterus*, *melanopterus* and two new species described in the present paper—*longus* and *rickseckeri*. In *longus* and *longiventris* the ciliation is quite conspicuous, in *hemipterus* and *pallipennis* distinctly less so, and in the others the fringe is so short that in old or ill-conditioned specimens it might not be at all apparent. It will be observed that all the above species are at least moderately large and convex, none of our smaller depressed forms showing any appreciable trace of the marginal hairs.

C. dimidiatus Fab.

As already indicated in the preceding remarks the anterior angles of the metasternum are distinctly less widely truncate by the raised line in this species than in *mutabilis* and *luridus*. This character seems to be a very constant one, and taken together with the recognized differences in size, color and sculpture demonstates to my satisfaction its specific distinctness. The metasternal line seems to be identical in position in *mutilatus* and *luridus*, and it is probable that we have been correct in regarding them as forms of a single species.

C. floridanus n. sp.

Closely similar to *dimidiatus* in size, form and most details of structure. Head, prothrox and elytra concolorous, brown; dorsal surface of abdomen and sometimes the metasternum darker. Punctuation a little finer throughout than in *dimidiatus*. Legs slightly stouter, the hind tibiæ of the male subcylindrical for a short distance at base, then rather abruptly widening, the inner outline arcuate.

Enterprise, Florida. Two ♂'s, one ♀.

This species doubtless passes in collections for *dimidiatus*, in which, however, the hind tibiæ of the male are gradually widened from the base, the inner margin straight.

C. longus n. sp.

Elongate, parallel, convex, feebly shining, brown, the head and propygidium somewhat darker, the elytra, legs and antennæ a little paler; pubescence of upper surface short and rather inconspicuous; sides of prothorax and elytra fimbriate with short close-set hairs. Head and prothorax densely punctate, elytra a little more finely and less densely so, the dorsal segments of the abdomen still less closely punctate though not sparsely so. Head fully $\frac{2}{3}$ as wide as the prothorax. Prothorax $\frac{4}{5}$ as long as wide, very little narrowed in front, sides nearly straight, hind angles rounded. Elytra with sutural length slightly shorter, and lateral length a little longer than their width; $\frac{1}{4}$ longer along the suture than the prothorax. Body beneath densely punctate anteriorly; abdomen somewhat less so. Additional anal segment of male inferior in position. Legs short and stout, differing very little in the sexes. Length, 4.4 mm.; width, 1.7 mm.

Santa Rita Mountains, Arizona. A single pair kindly given me by Mr. Schwarz.

In Horn's table this species would fall near *mutilatus*, but the large size, narrow, parallel, rather convex form give it an appearance which is quite different from any of our other species. The ciliæ of the lateral margins of the prothorax and elytra are longer than in any other of our species, except possibly *longiventris*.

C. longiventris Sharp.

Specimens which agree sufficiently well with Sharp's short description of this Mexican species have been taken in the Santa Rita Mountains of Arizona by Hubbard and Schwarz, and more recently by Prof. Snow. It is a stout convex species of the general type of *pallipennis*, but longer, fuscous, the antennæ, legs and vertex rufous, the elytra rufous with the suture narrowly at base, and a broad median stripe or cloud fuscous. Punctuation nearly as in *pallipennis;* supplementary anal segment of male vertical, produced, narrowed to apex, the tip rounded and polished; last ventral with an apical fovea, on each side of which is a transverse polished tuberculiform elevation. Tibiæ all stouter in the

male, those of the hind feet curved in a plane transverse to the body, their inner face denticulate. Pygidium of female a little concave longitudinally, the tip prolonged and pointed. Length about 3½ mm. Sharp gives 4 mm.

C. ignobilis n. sp.

Moderately elongate oval, subdepressed, piceous, legs and antennæ rufous, club of latter a little darker; upper surface moderately shining, with recumbent fuscous pubescence; punctuation close and moderately coarse throughout, the punctures on the disk separated as a rule by less than their own diameters. Head ⅗ as wide as the prothorax. Prothorax slightly more than ⅔ as long as wide, the apical width equal to the length, sides broadly arcuate, just visibly rounded in at base, not sinuate before the base angles, which are rather sharply defined and somewhat obtuse; disk with a very narrow median impunctate line in basal half. Elytra just perceptibly wider than long, at sides ½ longer than the prothorax, the sutural length about ⅞ the lateral length. Pygidium and propygidium more finely punctate than the elytra. Beneath less shining and rather densely punctate, the abdomen less coarsely and closely so. Length, 3.5 mm.; width, 1.6 mm.

Santa Rita Mountains, Arizona.

A single female specimen sent by Prof. Snow is all I have seen of this species, which while quite surely disctinct from any of our described species, seems to possess no characters of special interest. It is apparently nearest *niger*, differing from that in its narrower form, narrower prothoracic side margins, and entire lack of pronotal impressions.

C. rickseckeri n. sp.

Rather broadly oblong oval, convex, sparsely pubescent, black or nearly so, elytra with a small basal pale spot within the humeri, legs rufous or rufo-piceous, antennæ rufous, the club piceous. Upper surface strongly shining, polished, without trace of alutaceous sculpture except feebly toward the sides and apex of the elytra. Above quite coarsely punctured, more coarsely and closely so toward the sides of the prothorax, more sparsely at the middle, where the punctures are separated by from one to two times their own diameters. Beneath less shining and rather densely punctate throughout. Head a little more than half as wide as the prothorax. Prothorax slightly more than one-half wider than long, arcuately narrowed in front, subparallel basally, not at all sinuate before the hind angles, which are not retracted, fairly well defined, a little obtuse. Elytra not apparently wider than the prothorax, ⅛ wider than long, the lateral length about ⅕

longer than the sutural and ⅓ longer than the prothorax. Supplementary anal segment of the male inflexed, but visible from above; pygidium of female longitudinally impressed at sides. Thighs stout, tibiæ moderate, straight, the front ones widest. Length, 3.3–4. mm.; width, 1.6–1.9 mm.

San Diego, California. One ♂, seven ♀s.

Taken in decaying cactus by Mr. L. E. Ricksecker, to whom the species is dedicated in recognition of many favors.

C. nitens n. sp.

Oblong subovate, moderately convex, piceous brown, antennæ, legs and under surface paler. Above rather sparsely pubescent, strongly shining, without or with but the faintest trace of alutaceous sculpture. Head moderately punctate, more finely so in front. Prothorax fully ⅓ wider than long, subparallel basally, sides arcuately narrowed in front, the apex ⅘ as wide as the base, hind angles well defined and subrectangular as viewed from above, not appreciably retracted; punctuation moderately coarse and close, the punctures separated at middle by from one to two times their own diameters; closer and a little coarser laterally. Elytra scarcely wider than the prothorax, slightly wider than the sutural length, sides parallel for ¾ their length, then a little narrowed to apex; punctuation similar to that of the prothorax. Beneath rather densely punctate, the prosternum more coarsely, the abdomen more finely so than above. Tibiæ nearly straight and gradually widened apically, scarcely different in the sexes. Additional anal segment in the males inferior in position. Length, 3 mm.; width, 1.4 mm.

Five examples are before me, all taken at or near Mobile, Ala., by Mr. H. P. Löding.

By Horn's table this species would fall near *antiquus*, from which it differs in its uniform color, more convex form, longer pubescence, unmodified hind tibiæ of the male, and in several other details. *Nitens* does not agree very closely with any of the species described by Murray or in the "Biologia," though seemingly nearest to *ferrugineus* Murr., of Mexico. This latter, however, is said to have the head and thorax very lightly and sparingly punctate, posterior angles obtuse and scutellum scarcely punctate, none of which characters apply to *nitens*.

C. floralis Er.

Dr. Sharp believes this to be distinct from *pallipennis* Say, and observes that it has the sides of the elytra less distinctly

ciliate, thus forming a sort of transition between the ciliate and non-ciliate species. He says that it differ from *pallipennis* otherwise in having more definite punctuation of the elytra, and the pygidium of the female quite simple at the extremity, whereas in *pallipennis* it is prolonged, incrassate and somewhat reflexed. This structure of the pygidium in the female is very distinct in some specimens before me, and feeble or obsolete in others that appear to be equally good *pallipennis*, I am, therefore, undecided as to what signification to attach to these variations.

TROGOSITIDÆ.

A new genus seems to be necessary for an undescribed Californian species allied to *Nemosoma* and *Alindria*. These two genera are themselves mutually very closely related, differing only in the broader more conspicuously spinose tibiæ and relatively shorter tarsi of *Alindria*. The difference in the form of the eyes indicated in the "Classification" is barely detectable, and seems to me of even less weight than such superficial characters as the humeral pits and finer elytral sculpture of *Nemosoma*. The new genus certainly differs more from each of these than they differ from each other.

PSEUDALINDRIA new genus.

Elongate, cylindrical, head equal both in length and width to the prothorax; epistoma deeply triangularly emarginate and impressed at apex, the sides produced over the base of the mandibles; palpi as in *Nemosoma* and *Alindria*. Antennæ as in these genera, except that the club is wider and less asymmetric, being distinctly developed interiorly, though less so than exteriorly. Eyes broadly transversely oval, not at all emarginate. Elytra without basal pits, not striate, the punctures confusedly distributed, with traces of serial arrangement near the suture. Tibiæ rather slender, the two anterior pairs with two or three small distant spines on the outer margin; front tibiæ with a rather slender curved apical spur; middle and hind tibiæ without distinct spurs; tarsi slender, as long as the tibiæ, last joint shorter than the three preceding united.

P. fissiceps n. sp.

Form narrow, cylindrical, moderately shining, black, prothorax and basal third of elytra, antennæ and legs reddish-brown; beneath blackish. Antennæ shorter than the head, basal joint longer, joints 2–8 short, gradually wider externally, club subequal in length to the preceding six joints, and twice as wide as the 8th; 8th joint transversely oval. Head elongate, parallel behind the eyes, the latter small, not prominent, about as distant from the prothorax as from the front of the epistoma. Epistoma deeply triangularly emarginate and impressed, front with a longitudinal impressed line; surface alutaceous, and rather strongly not closely punctate, the punctures elongate. Prothorax subequal in length to and not wider than the head, obviously narrowed posteriorly, apex squarely truncate, base broadly arcuate, side margin fine, disk evenly convex, punctuation slightly finer than on the head. Elytra very slightly wider than the prothorax, fully $2\frac{1}{2}$ times as long as wide and about $\frac{1}{3}$ longer than the head and prothorax together; punctuation rather sparse, irregular, with traces of serial arrangement near the suture; disk without trace of striæ, a short rather deep linear impression on the declivity. Head and prosternum beneath coarsely sparsely punctate; metasternum and abdomen finely sparsely punctate. Length, 4.4–5.7 mm.; width, .95–1.2 mm.

I owe my specimens of this interesting species to Dr. E. C. Van Dyke, who took them flying on warm days in March about corded Douglas spruce logs at Forest Hill, Placer County, California.

NEMOSOMA Lat.

N. caviceps n. sp.

Similar in form and size to *cylindricum*, piceous, antennæ and legs rufous, extreme base of elytra obscurely rufescent near the humeri. Head broadly but distinctly transversely impressed posteriorly, front broadly concave. Elytra very finely punctate striate basally, the punctures becoming almost completely obsolete apically; abdomen nearly smooth, the punctures very fine and remote.

Huachuca Mountains, Arizona—9000 feet (type); Las Vegas Hot Springs, New Mexico (Barber and Schwarz).

In *cylindricum* the front is flat or very nearly so, the head scarcely impressed behind, the elytral striæ distinct to apex, the abdomen more closely and distinctly though finely punctate, the elytra usually with basal and apical rufous areas.

TENEBRIOIDES Pall.

T. tenuistriata n. sp.

Strongly depressed, intensely black above, surface alutaceous and only moderately shining; beneath black or blackish anteriorly, the abdomen piceous or piceo-castaneous, legs and antennæ rufo- to piceo-castaneous. Prothorax not quite one-half wider than long, sides rather widely margined, sinuate behind, hind angles rectangular, basal margin squarely truncate, punctuation as fine as in *castanea*. Elytra one-fourth wider than the prothorax, evidently widest at middle, strial punctures very fine, the striæ scarcely perceptiby impressed, intervals biseriately punctate. Length, 7–8 mm.; width, 2½–3 mm.

Described from a series of four examples taken by the writer at Las Vegas Hot Springs, New Mexico.

This species is one of the most distinct in our fauna, being approached by no other in the fineness of the elytral sculpture. The squarely truncate hind margin of the prothorax is also peculiar to it.

T. occidentalis n. sp.

This name is proposed for a species occurring commonly in the Southern Rocky Mountain region. It is most nearly allied to *corticalis* and *californica*, but appears to be distinct from both. As compared with *corticalis* it averages considerably larger, the prothorax is more widely margined at the sides and a little more coarsely punctate; the interstitial punctures of the elytra are also less fine, and the sides of the elytra are a trifle less straight and parallel. The color is almost never black, varying from castaneous to piceous, the prothorax often somewhat paler than the elytra. The resemblance to *californica* is quite as strong, but in the latter the form is a little stouter, the elytra a little less elongate, the prothorax is also less widely margined, and the eighth antennal joint is subtriangular and a little wider than the seventh, while in *occidentalis* it is oval and not at all wider than the seventh. Length, 7–9.2 mm.; width, 2.6–3.3 mm.

Specimens are before me from Boulder, Colorado; Las Vegas Hot Springs, Pecos and Cloudcroft (type), New Mexico; and Williams and Chiricahua Mountains, Arizona.

T. debilis n. sp.

Strongly depressed, piceous above or with the head, or head and prothorax, castaneous; beneath rufo-castaneous. Antennæ about as

long as the head, eighth joint not wider than and similar to the seventh. Head and prothorax coarsely closely punctate, the latter strongly narrowed behind, the side margin narrow, evidently but briefly sinuate at the hind angles, which are well developed though small and nearly rectangular. Elytra narrowly oval, widest at middle, striæ well impressed, intervals rather strongly biseriately punctate. Length, 5.1–5.3 mm.; width, 1.9 mm.

Described from two examples, the type taken by myself at El Paso, Texas; the other from Texas without specific locality.

This species is nearest *marginata* and was so named for me years ago. Specimens of the latter species from Ohio in the LeConte Collection, with which I have made comparison, differ in being black with sides of elytra rufous, head and prothorax less coarsely closely punctate, the latter less narrowed behind, the angles a little less prominent, the elytra more parallel. *Collaris* is of the same size and general appearance but is still more flattened, with the prothorax even more finely margined, and the hind angles scarcely defined.

T. californica Horn.

This species is quite distinct from *sinuata* with which it has been united as a variety in the Check List. The lattter has the prothorax less narrowed behind than usual and more widely margined than in *californica*.

ELATERIDÆ.

LIMONIUS Esch.

L. vernalis n. sp.

Head and thorax aeneopiceous, margins, except sometimes the lateral ones, more or less marrowly pale; elytra reddish-brown, beneath piceous, the prosternal lobe, sutures and side margins, and the abdominal apex more or less pale. Antennæ longer than the head and prothorax by about two joints (♂), or about reaching the hind angles of the thorax (♀); joints 2–3–4 gradually longer, the third scarcely wider than the second; fourth wider, triangular, nearly one-half longer than wide; following joints gradually narrower but scarcely longer than the fourth. Head rather coarsely punctate, front flattened or feebly concave, margin feebly sinuate at middle. Prothorax slightly longer than wide, widest behind the middle, sides broadly arcuate and gradually a little convergent from about the basal third, not sinuate before the

hind angles, which are parallel and not produced; disk strongly moderately coarsely punctate, the punctures nearly in contact at sides, slightly finer and distant by their own diameters—more or less—at middle; median line impressed posteriorly. Elytra parallel in basal two-thirds, finely striate, striæ distinctly punctate, intervals subbiseriately punctate. Beneath a little more finely and less closely punctate. Basal joint of tarsi a little longer than the second. Length, 8.3–10 mm.; width, 2.1–2.7 mm.

Southern California—Pasadena (type), Pomona, Claremont, Riverside, Santa Monica. Specimens from Healdsburg and Russian River in Northern California seem scarcely different, and are so referred.

This species is the commonest one of the genus in Southern California, appearing on willows in early spring. It resembles in a general way several Californian species. Of these *infuscatus* differs in having shorter antennæ, the joints relatively a little less elongate, the prothorax uniformly æneo-piceous and more finely punctate, and the elytra of a darker tint; *discoideus* has the pale side margins of the prothorax wider and is more coarsely densely punctate; *occidentalis* has the prothorax entirely piceous, and also much more coarsely densely punctate; *canus* is more coarsely sculptured, darker in color, and with longer antennæ.

ATHOUS Esch.

A. aterrimus n. sp.

Intense black throughout, dull, pubescence fine, fuscous. Antennæ as long as the prothorax, second joint half as long as the third, third broadly triangular, a little narrower and shorter than the fourth, fourth and fifth equal, broadly triangular, a little longer than wide; following joints gradually narrower. Head densely punctate, strongly subtriangularly impressed. Prothorax slightly longer than wide, gradually narrowed from the base, sides scarcely at all sinuate posteriorly, broadly arcuate, hind angles short and blunt, not produced, rounded at tip and not divergent; punctuation very dense throughout, median line with trace of impression in certain lights, hind angles with a fine but strong, moderately long acute carina. Elytra not much more than twice as long as the prothorax, very feebly narrowed from the base for two-thirds their length, then more rapidly so to apex, striæ moderate, intervals rather densely punctate. Beneath more shining, pubescence paler, rather closely finely punctate, the propleuræ more densely so. Basal joint of hind tarsi as long as the next three, joints 1–4 all with a short lobe, the lobes of the second and third a little more developed. Length, 10.5 mm.; width, 3 mm.

McCloud, Northern California (Fenyes).

A single example of uncertain sex is all I have seen of this species, which is not at all like any other of the genus known to me. The general aspect is like that of *Megapenthes tartaricus*, though less coarsely sculptured and less pubescent.

A. ingens n. sp.

Black, shining, pubescence blackish, very fine and short, sparse and inconspicuous. Antennæ (♂) passing the hind angles of the thorax by a little less than the length of the last joint; (♀) failing to reach the hind angles by about two joints; second joint one-half as long and slightly more than half as wide as the third, the latter a little shorter and narrower than the fourth, which is a little longer than wide; outer joints gradually narrower and more parallel, the tenth about twice as long as wide. Head closely punctate, front rather strongly concave, the concavity subtriangular in some specimens. Prothorax not quite as long as wide, a little narrowed in front, sides broadly arcuate, hind angles scarcely divergent; punctuation dense and rather coarse laterally, finer and less close medially, a short, narrow, imperfect smooth line at middle; median line impressed posteriorly, hind angles with a fine short carina. Elytra not much wider than the prothorax and nearly three times as long, subparallel in the male, a little dilated posteriorly in the female; striæ moderately impressed, finely punctate apically, more strongly so basally; intervals feebly convex, finely sparsely punctate. Prosternum closely rather coarsely punctate, the flanks fully as coarsely and more densely punctate; metasternum and abdomen more finely and sparsely punctured. Basal joint of hind tarsus as long as the next three; joints 2–3–4 with short lobes. Length, 16 mm.; width, 4.7 mm.

Five specimens have been seen, all collected by Dr. Fenyes at Mohawk, California. It is probably most nearly allied to *scissus*, but may be separated by its larger size and carinate hind angles of the thorax.

A. imitans n. sp.

Elongate convex, moderately shining and pubescent, head and prothorax piceous, the hind angles of the latter pale, elytra rufotestaceous, beneath piceous, the legs, prosternal lobe, and sometimes the abdominal apex, pale. Antennæ brown or piceous, paler at base, short, not or scarcely attaining the hind angles of the prothorax, joints 2–3 subequal in width, the latter but little longer; fourth distinctly wider and about one-third longer than the third, triangular, three-fourths as wide as long, the lower apical angle obtuse and rounded; fifth similar

to the fourth, following joints gradually narrower, the eleventh only slightly longer than the tenth. Head flattened in front and feebly broadly concave, the apical margin not or but little reflexed, densely punctate. Prothorax a little longer than wide, sides feebly arcuate, a little narrowed in front, not sinuate posteriorly, the hind angle not produced, rectangular; surface densely, nearly evenly, not coarsely punctate, median line vaguely impressed, hind angles not carinate. Elytra very little wider than the prothorax and two and one-half times as long as wide, finely striate, intervals nearly flat, closely punctate. Beneath rather densely not coarsely punctate, the prosternum somewhat less closely punctate. First joint of hind tarsus not quite as long as the three following; tarsal joints without lobes. Length, 8.5–10.5 mm.; width, 2.3–2.9 mm.

Placer County, California (G. R. Pilate).

The pubescence is pale throughout, rather closely recumbent with sparsely dispersed longer more erect hairs both above and beneath, most noticeable on the pronotum, where, however, they are only evident when viewed in profile. This peculiarity of the pubescence is observable in a few other species of *Athous*, notably in *discors* and *agriotoides*, the latter of which very closely resembles the present species. In *agriotoides* the pubescence is longer throughout, the prothorax more coarsely punctate, the second antennal joint only half the length of the third, the latter nearly as long as the fourth, and the third tarsal joint is conspicuously lobed.

CORYMBITES Lat.

C. linearis n. sp.

Very narrow, rather feebly shining, sparsely pubescent, prothorax rufotestaceous with the side margin and a broad median longitudinal vitta fuscous, elytra yellow with side margin and broad sutural stripe dark brown; beneath rufotestaceous, the sterna more or less completely infuscate; prosternum yellow in front, the tip of the lobe dark. Antennæ brown, slender, half as long as the body, the seventh joint reaching the hind angles of the prothorax (♂), second joint short, nearly as wide as long and scarcely half as long as the third, the latter elongate triangular, a little more than twice as long as wide, the apical angle obtuse; fourth joint slightly longer than the third, the following joints becoming gradually longer, 6–11 parallel, the tenth at least four times as long as wide. Head densely coarsely punctate and feebly concave. Prothorax much longer than wide, apex not wider than the head, sides straight and gradually divergent to base angles, a faint sinuation before the latter, which are, however, scarcely diver-

gent and not produced; surface coarsely densely punctate throughout, except for a very narrow, incomplete and imperfect smooth median line; hind angles with a moderately long and fine carina near the side margin. Elytra three times as long as the prothorax and three and one-half times as long as wide, widest at the humeri, thence gradually attenuate to apex; striæ well marked, finely punctate near the suture, more coarsely so laterally; intervals somewhat convex and biseriately punctate, the punctures close to those of the striaæ. Beneath finely rather densely punctate posteriorly, the prosternum more coarsely so. Length, 13–14 mm.; width, 2.9–3.1 mm.

California.

Described from two male specimens given me years ago by Mr. L. E. Ricksecker, and probably taken by him in the vicinity of Santa Rosa.

Linearis is rather strongly suggestive of the Eastern *longicornis*, which has still longer antennæ, with the second joint shorter, the prothorax less densely punctate, more shining and not vittate.

C. macer n. sp.

Strongly elongate, brown, the pronotum, prosternum and median parts of the abdomen piceous; surface shining, pubescence short, grayish, rather sparse. Antennæ three-fourths as long as the body, the seventh joint reaching the humeral umbone, second joint small, a little wider than long and scarcely one-third the length of the third, the latter triangular, twice as long as wide, the apical angle nearly right; following joints gradually longer and less triangular, 7–11 linear. Head densely punctate, front broadly concave. Prothorax at apex not wider than the head, sides gradually divergent and nearly straight throughout, hind angles not produced or divergent, the width across the hind angles not quite three-fourths of the length along the median line; punctuation rather coarse, dense laterally, a little less so medially, but with no indication of a smooth line; hind angles carinate. Elytra three and one-fourth times as long as wide, striæ rather fine, intervals slightly convex, biseriately punctate apically, the punctures becoming more numerous and irregular basally. Body beneath finely closely punctate, the prosternum more coarsely so at middle. Length, 15 mm.; width, 3.6 mm.

Miami, California; June, Dr. Fenyes.

Nearly as elongate as *longicornis* and *linearis*, and allied to them by the unusually long antennæ, which are, however, not quite as long as in *longicornis*, though longer than in *linearis*, but differs from both in color.

C. rufipennis n. sp.

Black, elytra red, propleuræ piceous at middle, paler in front and behind; femora piceous, tibiæ and tarsi paler. Antennæ passing the hind angles of the thorax by about two joints, moderately serrate basally, second joint just visibly longer than wide, and about one-half the length of the third, the third not quite twice as long as wide, subequal to the fourth, the latter about one-third longer than wide, tenth twice as long as wide. Head vaguely concave, not very densely punctate. Prothorax evidently longer than wide, sides broadly arcuate and moderately convergent in front, a little sinuate before the hind angles, which are moderately divergent; punctuation coarse and dense laterally, finer and less close medially, where the punctures are separated by about their own diameters; disk broadly impressed at sides near the middle, hind angles carinate. Elytra parallel in basal three-fifths, striæ moderate, finely punctate, intervals nearly flat toward the suture, feebly convex laterally, finely not very numerously punctate. Beneath finely densely punctate, the prosternum more coarsely so. Length, 11 mm.; width, 3.2 mm.

Kaweah, California, June 5th, 7400 feet. One specimen, probably a male, received from Mr. Ralph Hopping. This species resembles and is perhaps nearest *spinosus;* it is, however, a little narrower, the thorax more coarsely punctate, the antennæ stouter and the elytra of a brighter tint.

C. lutescens n. sp.

Testaceous, prothorax brownish, head darker; beneath brownish, the abdominal apex more or less paler; pubescence fine and short, pale. Antennæ piceous or brown, the basal joint pale, in the male passing the hind angles of the prothorax by about two joints; joints 2–3–4 gradually longer (♂), the fourth barely twice as long as wide and distinctly shorter than the second and third together. Head moderately coarsely closely punctate. Prothorax, exclusive of the hind angles, nearly square, sides subparallel, narrowed a little in front, hind angles prolonged, acute, and rather strongly divergent; disk finely not very closely punctate, median line not impressed, hind angles with a fine short carina. Elytra about two and two-thirds times as long as wide, sides nearly parallel, striæ fine, very finely punctate, intervals rather closely confusedly punctate. Beneath finely rather sparsely punctate, the propleuræ more densely so. Length (♂), 9.2 mm.; width, 2.5 mm.; (♀) length, 10.2 mm.; width, 3.6 mm.

The male type above described was taken at Bannf, Alberta, by Dr. Fenyes. I have associated with it with confidence several females from Emerald Lake, B. C., also collected by Fenyes. The females are notably stouter, the pro-

thorax wider and more rounded at sides, the elytra inflated posteriorly, the antennæ barely as long as the thorax, the fourth joint just visibly longer than the third; the prothorax and lower surface paler than in the male, the elytral striæ very fine and not impressed on the disk basally.

This species seems nearest *insidiosa*, from which it differs by the less elongate prothorax and shorter antennæ. In *insidiosa* (♂) the fourth antennal joint is nearly twice as long as the third and equal in length to the second and third together. *Sagitticollis* is also similar in general form and facies, but is a larger species, and in the male the second and third joints of the antennæ are short, together not longer than the fourth.

C. nigricans n. sp.

Moderately elongate, shining black, the elytra piceous black, legs and antennæ rufopiceous, pubescence very fine dark and inconspicuous. Antennæ short and stout, not reaching the base of the prothorax; second joint a little more than half as long as the third, third and fourth subequal in length, the latter a trifle wider and not quite twice as long as wide; fifth distinctly shorter than the fourth, the following joints gradually shorter, the tenth nearly as wide as long. Front flattened, the impression distinctly triangular in one specimen, punctuation moderate. Prothorax subquadrate, as wide at middle as the apices of the hind angles, sides broadly arcuate, not very strongly narrowed in front, sinuate behind, hind angles moderately divergent and acute, strongly carinate; punctuation rather dense but not coarse, not closer at sides, median line impressed throughout. Elytra very little wider than the prothorax, striæ finely punctate, intervals very finely irregularly not densely punctate, there being four to five punctures in the width of the interval. Beneath sparsely finely punctate, the propleuræ a little more closely and coarsely. Length, 11.5–12 mm.; width, 3.4–3.5 mm.

California, Lake Tahoe (type) and Siskiyou County.

The antennal structure and to a considerable extent the general form is suggestive of *sulcicollis*, near which the species may be placed. In *sulcicollis* the prothorax is longer and widest at a point much farther forward.

C. exclamationis n. sp.

Obovate, depressed, shining, finely pubescent, black, elytra yellow, each with a small subbasal spot, and behind this an obliquely arcuate

longitudinal vitta at the middle third approaching the suture posteriorly, black. Antennæ barely reaching the hind angles of the prothorax, nearly as in *hieroglyphicus* and allies, the third joint a little wider apically, but not distinctly triangular, barely as long as the fourth. Head small, scarcely half as wide as the prothorax; front flat, not closely punctate. Prothorax as long as wide, widest at base, the hind angles moderately strongly divergent, sides arcuately and rather strongly narrowed anteriorly, surface finely closely punctate, hind angles not carinate. Elytra strongly widening to apical third, where they are one-third wider than the prothorax, three-fourths longer than wide, side margins rather broadly reflexed, striæ almost obliterated except at base, the rows of punctures just discernible with a good lens. Beneath finely closely punctate and pubescent. Length, 8.8–9.6 mm.; width, 3.2–3.6 mm.

Described from a series of five specimens taken by Dr. Fenyes near Lake Tahoe, California.

A very pretty species related to *nigricollis*, *hieroglyphicus*, etc., but at once distinguishable by the elytral markings and the nearly obliterated striæ. The elytral vitta reaches the suture and extends forward a short distance along it in one specimen.

C. polygenus n. sp.

Form rather narrow, parallel, reddish-brown, pubescence conspicuous, pale ochreous in color. Antennæ barely passing the hind angles of the prothorax, joints 2–3 short, subequal, together a little longer than the fouth, 4–10 triangular, the fourth about one-third longer than wide, following joints very gradually becoming a little narrower and shorter, the tenth scarcely twice as long as wide, the eleventh about two and one-half times as long as wide. Head and prothorax rather closely pubescent, the former broadly concave, margin of front arcuate, not reflexed, closely rather coarsely punctate. Prothorax very little longer than wide, sides nearly parallel, feebly narrowed near the apex, hind angles short, not divergent and not evidently carinate. punctuation rather coarse, deep, and dense throughout; disk flattened along the median line in front, and evidently impressed posteriorly. Elytra parallel in basal two-thirds, striæ rather strongly punctate, intervals nearly flat on the disk, each with a series of fine punctures each side, with more distant ones along the middle. Prosternum closely rather coarsely punctate, the flanks easily so; prosternal sutures single; metasternum more finely less densely punctate, the abdomen finely rather sparsely punctured. Basal joint of tarsi subequal to the next two, the third joint with a feeble apical lobe. Length, 10.5 mm.; width, 3.2 mm.

Sylvania, California (Ricksecker).

This species looks more like an *Athous* than a *Corymbites*, and the incipient lobe of the third tarsal joint would bear out the resemblance; the frontal characters, however, are those of *Corymbites*, and since the latter genus is already strongly polymorphic, it seems better for the present to include the species here.

PLASTOCERUS Lec.

Males of this genus are not uncommonly taken in Southern California, either in flight at dusk or by beating or sweeping. So far as I know no female specimens have ever been taken, and their form is purely conjectural, though they might reasonably be expected to resemble those of the allied genera *Aplastus* and *Euthysanius*. The placing of *P. frater* Lec., as the female of *Schaumii* by Dr. Horn is an error for which there seems little excuse. LeConte expressly states that his unique type of *frater* is a male, which declaration is easily verifiable, the genitalia being plainly visible. *Frater* is at once separable from our other Plastoceri by the relatively short, almost non-ciliate antennal rami, these being about half as long as the width of the front, while in all others the rami are very nearly equal in length to the frontal width. With *frater* removed there remains in my collection a very perplexing array of specimens, in which several species seem indicated, but in which, after the separation of one well characterized form, I am unable to draw further lines of distinction with any exactness. The form and punctuation of the prothorax varies so much individually as to be of no use in separation of species, and many other differences which are obvious when two individuals are compared become evanescent or even reversed when more specimens are examined. For the present, therefore, it is best to consider all these varieties as forms of *Schaumii*. The typical *Schaumii* comes from San Diego in the immediate vicinity of the coast. It is dark piceous brown in color, the eyes relatively small and less prominent than in other forms, their width as seen from the front less than one-fourth the frontal width; the elytra about three times as long as wide.

The most notable variations from the typical form occur in color, which is often paler, the larger eyes and the shorter elytra, which may be more narrowed apically. The following is a very distinct species.

P. megalops n. sp.

Reddish-brown, form strongly elongate, elytra nearly parallel, about three and one-fourth times as long as wide; pubescence very short; eyes very large and prominent, their width, viewed from the front, fully two-fifths the interocular width. Length, 12–13 mm.; width, 2.8–3 mm.

Pomona, California.

The above characteristics are sufficient and perfectly distinctive. The prothorax varies as usual in form, the sides either straight or more or less dilated at middle; the punctuation variable but never very coarse or dense. The hind angles are always strongly divergent.

Numerous specimens have been taken in years past, and have been sent to correspondents as *Schaumii*. I have never seen it from any other locality, and suspect it to be very local or restricted in distribution.

BUPRESTIDÆ.

POLYCESTA Sol.

P. obtusa Lec.

The type has a dense brush of yellowish hair on the first ventral segment, indicating that it is really *angulosa* and not *velasco* as recorded in synonymy. The first ventral segment is scarcely or but slightly swollen and is as densely punctate as the other segments.

AGRILUS Steph.

A. knausii Schf.

Typical specimens of this species were sent me by Mr. Knaus several years ago. They were at first thought to be new, but on comparison with the type of *obolinus* at Cambridge I came to the conclusion that they were not specifically different. Since Mr. Schaeffer's description of the species under the above name I have again compared my specimens with the LeConte type, and see no reason to reverse my first decision. The diagnosis of *obolinus* as given by Horn in his

Synopsis of the genus is erroneous in several important particulars. He describes the thorax as without strigosity, the hind angles without trace of carina and the elytral apices not serrulate, none of which statements are correct. In these respects *knausii* is in accord with the type, and the only differences noted aside from color were the apparently somewhat shorter antennæ and the slightly better marked carina of the hind angles of the prothorax in the latter.

LAMPYRIDÆ.

PLATEROS Bourg.

P. roseimargo n. sp.

Slender, nearly four times as long as wide, black, sides of prothorax rather widely, apex more narrowly margined with rose red. Antennæ (♂) feebly serrate, nearly half as long as the body; third joint triangular, as wide as long, about three-fifths as long as the fourth and quite as wide; fourth about twice as long as wide. Prothorax a little more than two-thirds as long as wide, widest at base, sides feebly convergent for a short distance from base, then more strongly so, sinuate each side of the rather narrowly rounded apex; median line not carinate in front, channeled behind. Elytra five times as long as the prothorax, reticulation rather fine but distinct; costaæ fine, the alternate ones just visibly more prominent. Length, 6 mm.; width, 1.6 mm.

Santa Rita Mountains, Arizona. One ♂, collected by Prof. Snow.

P. coccinicollis n. sp.

Black, prothorax bright rose scarlet, with or without a small posteromedian black spot. Antennæ (♀) as long as half the body, third joint triangular, slightly wider than long, nearly or quite equal in width to the fourth joint, the latter oblong, narrowed at base, one-half longer than wide and nearly twice as long as the third; fifth joint similar to but slightly shorter than the fourth, following joints subequal in length to the fifth and gradually narrower. Prothorax seven-tenths as long as wide, sides nearly parallel basally, broadly evenly arcuate around the front, the outline only very slightly more prominent at apex; median llne feebly subcarinate in front, impressed posteriorly; margins moderately reflexed. Elytra nearly three and one-half times as long as the prothorax, feebly rather indistinctly reticulate, the costæ fine and equal. Length, $7\frac{1}{4}$ mm.; width, $2\frac{1}{4}$ mm.

Described from three female specimens taken at Beulah, New Mexico (type), and Boulder, Colorado. At once separable from all our previously described species except the

Lower California *Sanguinicollis*, by the bright red prothorax. *Sanguinicollis* is a smaller species (5 mm.), with prothorax more narrowly rounded apically, and with the third antennal joint but little shorter than the fourth (♂).

MALACHIDÆ.

COLLOPS Er.

C. crusoe n. sp.

Male. Head rufous, a small spot in front of the eye and the under surface blackish; prothorax rufous, elytra yellow, each with an elongate dark blue basal spot and a much larger one occupying the greater portion of the posterior half, the entire limb and suture pale; antennæ rufous; legs black, front and middle trochanters, the anterior tibiæ and all the tarsi rufous, middle tibiæ dusky; metasternum and abdomen in great part black, the apical segment of the latter largely pale. Upper surface dull throughout, with very short sparse black erect hairs, and still shorter very inconspicuous pale hairs. Basal joint of antennæ sinuate posteriorly, second a little longer than wide, following joints feebly serrate and a little wider than long, the outer ones as long as wide. Head finely closely punctate. Prothorax two-fifths wider than long, sides strongly rounded posteriorly, becoming nearly straight and feebly convergent in front, surface densely but vaguely, rather coarsely, subrugosely punctate. Elytra coarsely, densely punctate, narrow at base, broader behind, wings rudimentary.

Female. Differs from the male only in its larger size, unmodified second antennal joint, head black at sides, prothorax more rounded in front, and all the tibiæ pale. Length (head deflexed) 3–4½ mm.

Described from a single pair given me by Mr. V. W. Owen of Los Angeles. They with others were taken on the little Island of San Nicholas off the coast of Southern California.

This is a very pretty species with its pale rufous head and prothorax, and bright yellow elytra maculate with deep blue. It is doubtless a truly insular form, and with the exception of *cribrosus* differs from all our other species in being apterous. It agrees with *cribrosus*, *pulchellus* and *argutus* in the posteriorly sinuate basal joint of the antennæ.

C. flavicinctus n. sp.

Above clothed rather conspicuously with short recurved and sparser long erect pale hairs. Head pale yellowish testaceous in front, black back of a line joining the middle of the eyes; prothorax black with very narrow pale side margins; elytra blue-black, narrowly margined throughout with pale yellow. Antennæ pale yellow, the outer angles

of the intermediate joints slightly infuscate; second joint a little longer than wide and as long as the next two; following joints transverse. Head finely alutaceous and sparsely finely punctate. Prothorax moderately transverse, sides rather strongly rounded, surface strongly shining, finely sparsely punctate. Elytra subalutaceous, feebly shining, surface a little uneven, somewhat indistinctly finely rather sparsely punctate. All the trochanters and the posterior legs black, femora and tibiæ of the front and middle legs rufotestaceous, their tarsi blackish. Body beneath black, the margins of the ventral segment narrowly pale yellow. Length 3.5 mm.

San Bernardino Ranch, Douglas, Ariz.—3750 feet (Snow). A single female specimen.

By Horn's table this species would be associated with *punctulatus* and *vittatus*. The elytra are less distinctly alutaceous than in the former, and much more finely sparsely punctate than in the latter; it differs conspicuously from both in having the erect hairs entirely pale in color.

C. georgianus n. sp.

Male. Entirely pale rufous except the elytra, which are greenish-black with the side margins and suture, except at apex, narrowly rufous; apices of antennal joints slightly dusky. Pubescence dual as usual, the short recurved hairs pale, the erect hairs sparse, short, black. Basal joint of antennæ very broadly triangular, nearly as wide as long, second joint much wider than long, 3–5 about as long as wide, following joints evidently longer than wide. Head very densely finely punctate and dull. Prothorax moderately transverse, sides nearly straight and very slightly convergent in middle four-fifths, surface finely alutaceous and finely moderately closely punctate at middle, more closely and less finely so at sides. Elytra densely punctate and rather dull.

Female. Differs only in having the basal joint of the antennæ more slender, the second simple, about as long as the first, two-thirds longer than wide; prothorax more rounded at sides. Length 4–4.5 mm.

Georgia.

A single pair recived years ago as *limbellus*, which indeed it would be by Horn's table, but the latter has the head and prothorax polished and very sparsely minutely punctate, the elytra less closely punctate and moderately shining, the antennæ very strongly serrate, the intermediate joints very strongly transverse.

MALACHIUS Fab.

M. uniformis, new name ; = *inornatus* Fall.

At the time of describing this species I overlooked the fact that the name given was already in use for a Palearctic species ; the above change is therefore proposed.

M. spinipennis and **M. acutipennis.**

In addition to the antennal and elytral sexual characters, the males of these two species agree in possessing two other characters which are nearly peculiar. The inner face of the posterior femora is densely acutely granulose in its lower half for two-thirds its length from the base, and the posterior tibiæ are rather conspicuously pilose on the inner side for a short distance at apex, the hairs being quite short however. This latter character is feebly indicated in the males of some other species of the genus. *M. spinipennis* shows a decided tendency toward the formation of local races, specimens from different parts of California differing quite a little in size, color, extent of the thoracic spot and length of the antennal pectinations. It is quite possible that we have several closely allied species under this name.

The following three species seem surely different from any previously described.

M. contortus n. sp.

Rather stout, head, prothorax, under surface and legs bluish-black, the prothorax with a narrow pale margin, which is a little dilated at the posterior angles, and becomes obsolete or very narrow toward the middle of the base and apex; elytra deep blue, the tip yellow in the female. Pubescence very short, gray, surface lustre dull. Head and prothorax very finely alutaceous and finely punctulate, the latter feebly shining ; elytra scabrous and not distinctly punctate.

Male. Antennæ moderately serrate, joints 3 and 4 as wide as long, the following joints gradually narrower. Elytra impressed at the sutural angle and produced on a lower plane in a gradually narrowed process pale grayish testaceous in color, the tip sooty and narrowly rounded ; inferior plate broad, bidentate at tip and with an elongate and very irregular process attached at its base close to the sutural margin ; this process and the inferior plate projecting beyond the superior appendix and concolorous with it.

Female. Antennæ slightly shorter and distinctly narrower, feebly

serrate, all the joints longer than wide; elytral apex rounded, pale reddish yellow. Length 4–5 mm.

Bitter Root Mountains, Montana. Three ♂s; four ♀s.

In form, size, and sexual characters this species is almost precisely like *uniformis* (*vide* supra), the pale thoracic margin and the pale elytral apex of the female are, however, wanting in the latter.

M. viridulus n. sp.

Slender, slightly wider behind, more obviously so in the female, rather dark metallic green throughout, the elytra more rarely dark blue or blue-green; epistoma, antennal tubercles and genæ pale yellowish-white; pubescence sparse, rather long, grayish. Antennæ (♂) half the length of the body, rather strongly serrate, joints 3–5 about as long as wide, following joints a little longer than wide. Head and prothorax highly polished, very minutely remotely punctate. Prothorax a little transverse, sides feebly arcuate and moderately convergent in front, broadly rounded behind, without trace of base angles. Elytra moderately shining, surface a little irregular and subscabrous, punctuation somewhat coarse but vague, not very close; apices not at all appendiculate in the male. Length 3–4 mm.

Mt. Wilson, Southern California.

This species occurs abundantly on the flowers of *Ceanothus* on or near the summit of the Sierra Madre Mountains in June. It may be at once distinguished by its rather small size and entirely green color. Of the described species two only—*ænus* and *biguttulus*—agree with it in having serrate male antennæ and non-appendiculate elytra. The females of *viridulus* differ only in their slightly less parallel form, and shorter and narrower antennæ, the joints after the second all longer than wide.

M. bakeri n. sp.

Male. Form moderately elongate, parallel, black, faintly æneous, prothorax pale reddish-yellow with broad black median stripe, elytra with pale tip, legs black, hind tibiæ pale in apical two-thirds; pubescence pale, fine, sparse. Antennæ reaching the middle of the elytra, strongly pectinate, the branches of joints 3 and 4 about half as long as those of the following joints, those of 7 and 8 slightly longest and about one-half longer than the joints themselves. Head and prothorax strongly shining, the former sparsely punctulate, the latter transversely oval, broadly impunctate on the disk, a few fine punctures laterally. Elytra finely rugulose, vaguely finely punctate, sides slightly dilated

just before the obliquely narrowed apex, each with an impression just before the apex, the sutural angle minutely acuminate, inferior plate moderately projecting, rounded at tip, each bearing a slender acutely spiniform process arising from the base near the sutural edge, their tips in contact and attaining the level of the elytra. Hind tibiæ very slender throughout. Length 4.5 mm.

Claremont, California. A single male sent me by Prof. C. F. Baker, in whose honor it is named. The form of the elytral appendix is scarcely different from that in *mirandus*. The latter differs in color, in having the antennal branches longer, the intermediate ones nearly twice the length of the joints, and frequently dilated outwardly; the hind tibiæ very distinctly stouter in the male.

MELYRIDÆ.

DASYRHADUS new genus.

The two Californian species for which the above generic title is proposed are by their setose eyes and triangular terminal joint of the maxillary palpi related to *Rhadalus*. The small size and shorter vestiture is, however, much more suggestive of *Dasytes* and allies. The form is elongate, subdepressed, somewhat cuneiform, the prothorax very short and strongly impressed around the margins, vestiture short and uniform, eyes setose, last joint of maxillary palpi subtriangular, the outer edge broadly arcuate and a little longer than the apical edge, the latter straight, strongly oblique and twice as long as the inner side. Antennæ rather slender, nearly as in *Dasytes*. Epipleuræ slightly oblique, becoming inflexed and disappearing before the apex. Legs slender, tibiæ not spinulose and with terminal spurs; basal joint of tarsi not conspicuously hairy beneath, basal joint longer than the second; appendages of claws as long as the claws but separate from them apically for a variable distance.

D. impressicollis n. sp.

Elongate, subdepressed, a little wider posteriorly, piceous-brown, elytra usually a little paler, moderately shining; pubescence uniform, rather sparse, short and inclined. Antennæ but little longer than the head and prothorax (♀), a little more elongate (♂), scarcely thickened externally, clothed with short erect hairs in the ♀, and with longer

bristling hairs in the ♂, piceous, joints 2–4 pale; basal joint moderately thick, suboval, second joint similar but smaller, third elongate triangular, fourth subtriangular, about as wide as long, 5–10 oval, not much longer than wide, sixth and eighth a trifle smaller; eleventh ovate pointed, about three-fourths longer than the tenth. Head three-fourths as wide as the prothorax in the ♀, as wide as the prothorax in the ♂, closely rather coarsely punctate; front bi-impressed. Eyes moderate (♀), separated by about twice their vertical length; in the ♂ much larger, separated by their own length. Prothorax small, one-half wider than long (♀), widest before the middle, sides rather strongly rounded, margin finely serrulate, disk deeply and broadly transversely impressed along the apical and basal margins, the impressions coalescent laterally, leaving a transverse discal tumidity, whose summit is a little antemedian in position; moderately strongly but not densely punctate throughout, the summit of the tumidity somewhat smoother. Elytra very slightly wider at base than the prothorax, and about five times as long, gradually wider behind, their greatest width slightly more than half greater than that of the prothorax (♀), about twice that of the prothorax in the ♂; closely punctate throughout. Beneath a little more finely punctate, pubescence more recumbent. Legs brownish testaceous, thighs dusky. Length, 2.9–3.3 mm.; width, 1.2–1.6 mm.

California. Bartlett Springs (Fenyes), type; Big Trees, Calaveras County (Blaisdell); Tenino, Wash. (Schwarz and Barber).

In the male the fifth ventral is truncate and with a shallow rounded emargination at middle; the sixth smaller and similarly truncato-emarginate. In the female the fifth ventral is truncate, the sixth segment is apparenty normally exposed in both sexes.

D. longior n. sp.

Very similar to the preceding, but a little more elongate, the prothorax smaller, very little wider than the head in the ♀, and scarcely more than half as wide as the elytra in the same sex. In the ♂ the elytra are more than six times as long as the prothorax. Length, 3–3.4 mm.; width, 1.25–1.35 mm.

Fieldbrook, California (Schwarz and Barber).

The form of the fifth and sixth ventrals of the ♂ is the same as in *impressicollis;* in the ♀, however, the fifth ventral is less truncate than in the corresponding sex of *impressicollis.*

CHRYSOMELIDÆ.

SYNETOCEPHALUS new genus.

Elongate, parallel, glabrous above, sparsely pubescent beneath. Head large, a little wider than the prothorax, eyes broadly oval, moderately prominent, front not carinate between the antennæ. Antennæ long, filiform, fully three-fourths the length of the body, joints 2 and 3 equal and together scarcely as long as 4. Labrum transverse, truncate; last joint of maxillary palpi conical, acute, about twice as long as wide, shorter than the preceding joint, which is distinctly elongate. Prothorax transverse, narrowed behind, very narrowly margined at sides. Elytra elongate oblong, epipleuræ oblique, extending nearly to the apex. Anterior coxal cavities open behind, coxæ separated by a very thin lamina; middle coxæ more evidently separated. Legs slender, tibiæ straight, all armed at tip with a slender spur; basal joint of hind tarsus a little longer than the next two united, claws with a strong basal tooth.

The above characters are in the main those of *Luperodes*, near which the genus must take its place. The peculiar species upon which it is based does not, however, at all resemble *Luperodes*. The head somewhat strikingly suggests that of a *Syneta*, but it is relatively larger, with larger eyes. The non-carinate front, more slender antennæ, and the coarser and denser sculpture are notable divergencies from *Luperodes*, and taken with the cephalic peculiarity are sufficient for generic isolation.

S. autumnalis n. sp.

Elongate, parallel, testaceous, occiput, basal margin of elytra, epipleura and episterna suffused with reddish, tip of last antennal joint blackish; upper surface densely rather coarsely subrugosely punctate. Head large, front feebly convex and nearly smooth between the antennæ; frontal tubercles flat, limited behind by impressed lines, vertex and occiput densely punctate. Antennæ very slender, first joint as long as the next two, second and third subequal, together not quite as long as the fourth, fourth to eleventh subequal, nearly linear, each about five times as long as wide. Prothorax not quite as wide as the head, one-half wider than long, widest at apical third, or two-fifths, base broadly arcuate, scarcely as wide as apex, the latter squarely

truncate, all the angles minutely prominent. Elytra parallel, one-third wider than, and more than three times as long as the prothorax, and nearly twice as long as wide. Beneath shining, sparsely pubescent, obsoletely sparsely punctulate. Length, 4–4.3 mm.; width, 1.6–1.9 mm.

Sierra Madre Mountains near Pasadena, California—September.

I am indebted to Dr. Fenyes for my representatives of this most interesting species, which seems to be truly an autumnal one.

The above description applies to the male, the only female at hand differing in having the head not wider than the prothorax, and in entirely lacking the reddish tint present on certain parts of the body in the male. In the latter sex the last ventral is rather broadly deeply impressed in apical half, the impression narrowing in front, and the basal joint of the front and middle tarsi is parallel sided instead of narrowed basally as in the female. These basal joints though obviously feebly dilated are still very slender, being about four times as long as wide.

OPHRÆA Jacoby.

This genus has been established by Jacoby for a small number of Mexican species, which while structurally nearly identical with *Galerucella* differ by their shorter antennæ and nearly impubescent and finely rugose elytra. Some are posteriorly dilated, others not. *Rugosa* Jac., to which the species described below seems closely allied, is put in the group with dilated elytra, but the description says nearly parallel, and the plate indicates this.

O. arizonica n. sp.

Oblong oval, black, prothorax rufous with median elongate black spot; surface dull, the elytra with sparse exceedingly short and scarcely visible pubescence; punctuation of upper surface very dense, the punctures in actual contact or very nearly so throughout, coarser on the prothorax and basal parts of the elytra, becoming gradually finer apically. Antennæ less than half the length of the body, third and fourth joints equal. Prothorax fully twice as wide as long, widest behind the middle, sides arcuately convergent in front, the anterior angles minutely prominent, suddenly sinuate behind the point of greatest width, becom-

ing parallel for a short distance at base; hind angles rectangular, base obliquely sinuate each side, disk rather deeply tri-impressed. Elytra nearly six times as long and one-half wider than the prothorax, one-half longer than wide, surface somewhat uneven, a vague sublateral sulcus, bounded externally by an obtuse rounded ridge extending from the humerous nearly to apex. Beneath dull, finely sparsely punctate and feebly wrinkled, last ventral with an obscure pale spot occupying a feeble depression on each side. Length, 8 mm.; width, $4\frac{2}{3}$ mm.

Santa Rita Mountains, Arizona. A single specimen sent me by Prof. Snow.

Near *rugosa* Jac., but the latter has the prothorax immaculate and obsoletely depressed at sides and middle, and the fourth antennal joint one-half longer than the third.

NEOBROTICA Jac.

N. pluristicta n. sp.

Elongate ovate, wider behind, pale yellow, elytra each with two longitudinal series of three rounded small black spots, one subsutural the other lateral, with a smaller spot just outside the posterior subsutural one. Antennæ in great part and all the tibiæ and tarsi blackish, the front tibiæ pale internally. Antennæ about half the length of the body, third joint a little longer than the fourth, the base and two or three apical joints paler. Head sparsely punctate. Prothorax transversely subquadrate, sides parallel and feebly sinuate in basal half, broadly rounded and convergent in front, the side margin narrowed and deflexed anteriorly, basal margin oblique each side, the hind angles obtuse, surface impunctate and with a transverse bisinuate or biarcuate impression terminating outwardly in a fovea. Elytra twice as wide as the prothorax, widest at apical third, feebly shining, each with about twenty rather strongly and closely punctured striæ, the intervals very narrow, the alternate ones a little more prominent except at sides and apex, where the striæ show some tendency to become confused; sutural angle produced. Body beneath sparsely punctured and pubescent, moderately shining. Basal joint of hind tarsus evidently but not greatly longer than the next two. Length, 5.3–6.7 mm.; width, 2.6–3.1 mm.

Baboquivaria Mountains, Southern Arizona (Snow).

The elytral spots form three transverse series, a subbasal one with the outer spot on the umbone, the next just behind the middle, and the posterior one at the apical two-fifths, the outer spot being farther back than the inner one.

This is the first true *Neobrotica* to be recorded from within

our faunal limits, the *dorsata* of Say so referred by Dury having been properly removed and made the type of a new genus by Mr. Schaeffer. The species of *Neobrotica* are numerous in Mexico, and are very similar in general appearance to *Diabrotica*, differing by their appendiculate claws and usually strongly transversely impressed prothorax. *Pluristicta* appears to be most nearly related to *semicostata* Jac. by its elytral sculpture, but the latter is unspotted; the very brief description of Jacoby does not, however, permit a proper comparison.

LUPERODES Mots.

L. marginalis.

Pale yellow, head a little darker, lateral reflexed margin of prothorax and the sutural and lateral margin of elytra narrowly piceous, the sutural shade more or less evidently diffusedly dilated before the middle; three or four basal joints of antennæ pale, the following joints piceous except at base; body beneath piceous; legs entirely pale. Upper surface strongly shining, the head finely alutaceous and duller; punctuation moderately distinct and fairly close. Length 3 mm.

Alpine, Texas (Wickham).

With the exception of coloration, this species agrees very closely with *varicornis*, having as in that species joints 2–3 of the antennæ subequal and together not longer than the fourth, and the basal joint of the hind tarsi very evidently longer than the entire remainder; the sexual characters are also as in *varicornis*. In one example, which is evidently immature, the elytra lack the dark margin, and the body beneath is entirely pale; the narrow fuscous edge of the prothorax is, however, evident. According to the description of both LeConte and Horn *varicornis* is always entirely yellow, or at least of uniform shade above.

L. atricornis n. sp.

Oblong, moderately elongate, head brown, prothorax entirely yellow, antennæ, legs and metasternum black, abdomen paler. Upper surface polished throughout, the head with a few fine punctures posteriorly, prothorax scarcely visibly punctulate, elytra finely rather closely punctate. Antennæ fully two-thirds as long as the body, second joint a trifle longer than the third, the two together as long as the fourth. Front broadly convex, not at all carinate between the

antennæ. Prothorax nearly one-half wider than long, widest at middle, sides arcuate, minutely sinuate at the hind angles. Elytra parallel, barely two-fifths wider than the prothorax, three and one-third times as long and about two-thirds wider than the prothorax. Basal joint of hind tarsus very little longer than the next two. Length, 4.4 mm.; width, 2.25 mm.

Described from a single specimen taken by the late Prof. Snow in the Santa Rita Mountains, Arizona (8000 feet).

The type is a male having the last ventral truncate at middle and with two very short longitudinal incisions delimiting a sub-rectangular median lobe, which is moderately deeply impressed, the impression extending forward to the middle of the segment. By Horn's table this species will fall near *atriceps*, which, according to description, has the head black, the upper surface subopaque and more distinctly punctate, and the basal joint of hind tarsus much longer.

L. curvatus n. sp.

Oblong oval, pale yellow above, head brownish, antennæ entirely pale, body beneath brownish or piceous, legs pale, the femora more br less brown. Upper surface highly polished and subimpunctate throughout, the punctures very fine, sparse and feebly impressed. Joints 2–3 of antennæ subequal, together fully as long as the fourth. Front obtusely convex between the antennæ, impressed above the flattened tubercles. Prothorax rather large, moderately transverse, sides rounded and a little narrowed behind. Elytra one-third wider than the prothorax and a little more than two-fifths longer than wide. Basal joint of hind tarsus not longer than the two following. Length, 3 mm.; width, 1.7 mm.

Bishop, California. A single pair collected and kindly given me by Dr. Fenyes.

In the male the tibiæ are all curved at base, the basal joint of the front and middle tarsi is slightly dilated and the last ventral has an impressed median lobe, formed nearly as in the preceding species. In the female the tibiæ are straight, the basal joint of the four anterior tarsi more slender basally, and the last ventral is of the usual form for this sex. The color, relatively broad prothorax, nearly impunctate upper surface and curved male tibiæ easily distinguish this species from any other known to me.

L. crassicornis n. sp.

Oblong ovate, flavotestaceous, prothorax a little darker, head rufotestaceous to piceous, antennæ and legs pale, the femora darker. Antennæ not much longer than half the body, stout, joints 2–3 subequal, together fully as long as joint 4. In the male joint 3 is triangular and fully as wide as long, 4–10 triangular or subtriangular, 4 about one-half longer than wide. In the female the antennæ are less stout, joint 3 more oval and evidently longer than wide, the outer joints subtriangular and rather less than twice as long as wide. Upper surface throughout polished and very finely remotely punctulate. Tibiæ straight in both sexes. Basal joint of hind tarsus barely as long as the next two. Length, 3 mm.; width, 1.5 mm.

Mojave, California. June 1st. One ♂, three ♀s, taken by Dr. Fenyes.

The last ventral of the ♂ is broadly triangularly impressed for the greater part of its length, truncate at middle posteriorly, with a minute incision on each side; the basal joint of front and middle tarsi not appreciably dilated. *Crassicornis* closely mimics *curvatus*, especially the females, which but for the distinctly stouter and shorter antennæ of the former would be practically indistinguishable. In *curvatus* the antennæ are two-thirds as long as the body, the outer joints slender and fully three times as long as wide. The males are more readily separable, the prothorax being less broad in *crassicornis*, and the antennæ and tibiæ very different.

L. intermixtus n. sp.

Moderately elongate, black, elytra deep blue or blue-black, shining, femora piceous, tibiaæ and tarsi testaceous, the four posterior tibiæ becoming gradually dusky apically. Antennæ rather slender and longer than half the body, piceous, three or four basal joints pale, joints 2–3 subequal, together not or scarcelv longer than 4, the latter more than three times as long as wide and not longer than 5. Head rather small, eyes not prominent. Prothorax one-half wider than long, widest at middle, sides parallel and broadly arcuate, scarcely sinuate posteriorly, hind angles obtuse and not prominent, punctuation sparse and minute. Elytra three-fifths wider than the prothorax, two-thirds longer than wide, slightly oval, rather coarsely and closely punctate with intermixed much finer punctures, surface polished and without trace of reticulation. Basal joint of hind tarsus nearly as long as the three following. Length, 3.9–4.3 mm.; width, 1.9–2 mm.

Beulah, New Mexico (Cockerell), two females; Santa Rita Mountains, Arizona (Snow), one female.

By Horn's table this species must be associated with *morrisoni* and *varipes*, from both of which it differs by the less strongly oblong form, more transverse prothorax, non-reticulate elytra with distant intermixed punctuation, and the longer basal joint of the hind tarsus. In *morrisoni* the antennæ are much thicker, the fourth joint less than three times as long as wide, and distinctly longer than the fifth; the basal joint of the hind tarsus only as long as the next two.

L. nigrovirescens n. sp.

Form narrowly oblong, black, elytra with more or less evident dark greenish lustre; legs piceous, the front knees, tibiæ and tarsi pale, the middle knees usually more or less so. Antennæ piceous, the basal four joints pale, moderately slender, joints 2–3 subequal, together longer than the fourth, the latter three times as long as wide and scarcely longer than the fifth. Head subimpunctate, eyes moderately prominent. Prothorax one-fourth wider than long, widest in front of the middle, sides rather strongly arcuate anteriorly, sinuate posteriorly, front angles thickened, hind angles obtuse but sharply defined and slightly prominent, punctuation very sparse and minute, scarcely perceptible toward the middle of the disk. Elytra parallel, nearly twice as long as wide, three-fifths wider than the prothorax, very finely reticulate, finely rather sparsely punctate. Hind tibiæ straight; basal joint of hind tarsus as long as the next two. Last ventral of male broadly truncate behind, of female, oval. Length, 3.4–3.8 mm.; width, 1.5–1.6 mm.

Florissant, Colo. (Cockerell); eight examples, on flowers of *Juncus*.

This species is also allied to *morrisoni* and *varipes*. As compared with the former it is smaller, much less brilliant in color, with rather more slender antennæ, the fourth joint not longer than the fifth, the punctuation finer throughout. It differs from *varipes* also in its smaller size, duller color, and in having the prothorax more transverse and the hind tibiæ straight in both sexes.

HALTICA Geoff.

The species of this genus constitute a difficult study, and in making known some of the nondescript material which has accumulated in my cabinet, it has been hard to decide where to stop. We know as yet far too little of the extent

of variation within specific limits to enable us to speak with much assurance. In the case of *ignita* this variation is assumed to be very great, but I think it probable that this complex will ultimately be broken up. The opening wedge is here inserted by giving names to three forms from California and Florida, which by the latest paper on the genus would pass as *ignita*. Some further investigation of this and other species of *Haltica* is contemplated, but cannot be prosecuted at this time.

H. probata n. sp.

Green bronze, entire upper surface polished and strongly shining, sculpture throughout nearly as in *ignita*. Antennæ piceous, slightly more than half the length of the body; joints 2–3–4 gradually increasing in length, the fourth very nearly three times as long as wide, the tenth about two and one-half times as long as wide. Eyes rather small and not very prominent, their width as seen from the front distinctly less than half the interocular distance. Prothorax two-thirds wider than long, sides parallel in basal half, convergent anteriorly. Elytra fully two-thirds as wide as long, and nearly three-fourths wider than the prothorax. Body beneath piceous; abdomen alutaceous, rather coarsely punctate and transversely rugulose. Length 3.7–4 mm.

California (Belmont and Santa Rosa).

This species is closely allied to *ignita*, and if this latter be really as variable as the material referred to it in collections would indicate, then the present form is no more than a variety of this protean species. It is far more likely however—as indicated above—that more critical study and a better acquaintance with life habits, will resolve this heterogeneous mass into a number of sufficiently well defined species. *Probata* is at the upper limit in size of *ignita*, the color invariable so far as seen, the antennæ more slender than in *ignita*, the prothorax a little more narrowed in front, and the abdominal sculpture coarser; comparison being made with the brilliant coppery golden form of the Middle Atlantic States, which I assume to be typical *ignita*. The punctuation of the elytra is to some extent dual, consisting of larger and smaller punctures intermixed (the latter quite minute) as is the case in the true *ignita*. Dr. Horn speaks of the

intermixed character of the punctuation in his remarks under *ignita*, but a little farther on under *obolina* he inconsistently says—"this species resembles the more brilliant forms of *ignita*, and the elytral punctuation is similar, except that in *ignita* the intermediate finer punctures have not been observed." As a matter of fact this intermixed punctuation is quite obvious in many other species besides the two here mentioned.

H. litigata n. sp.

Elongate oval, moderately convex, green; head and prothorax finely but distinctly alutaceous, elytra still more finely so and more shining. Antennæ piceous, basal joints brownish, moderately stout, nearly as in *ignita*, the fourth joint about two and one-half times as long as wide, the tenth barely twice as long as wide. Eyes a little larger and distinctly more prominent than in *ignita*, the width of the head across the eyes fully four-fifths that of the prothorax at its widest point (in *ignita* about two-thirds that of the prothorax); frontal tubercles small, flat, well separated, the contiguous surface of the vertex not at all rugulose or punctate; frontal carina rather obtuse. Prothorax slightly less than two-fifths wider than long, sides evidently narrowed in front, margin moderately wide, ante-basal groove well defined and entire; punctuation very sparse and minute, a few larger punctures at the sides anteriorly. Elytra three-fourths wider than the prothorax, punctuation nearly as in *ignita*, the intermixed finer punctures less obvious. Beneath piceous, finely punctate and alutaceous. Femora piceous, slightly bronzed, tibiæ and tarsi brownish-testaceous. Length 3.4–3.6 mm.

Florida. One example from Enterprise (Griffith), others without definite locality.

This is one of the forms that by Horn's table would fall with *ignita*. It seems clearly enough distinct by its more alutaceous sculpture, more prominent eyes, slightly more trapezoidal prothorax, with rather less deep ante-basal groove, and the pale tibiæ and tarsi. The last ventral of the male is the same as in *ignita*.

H. suspecta n. sp.

Dark green bronze, shining, the upper surface obsoletely alutaceous. Eyes unusually large, their width as seen from the front equal to one-half their distance apart. Very close to the preceding species (*litigata*), with which it agrees except as follows: Vertex a little less smooth, eyes even slightly larger, prothorax less suddenly narrowed

in front, the sides very broadly nearly evenly arcuate, punctuation more evident, though very fine. Length 3–3.5 mm.

California (San Diego, type; Pasadena).

Numerous specimens. A single specimen taken by the writer in the San Bernardino Mountains is still smaller but apparently identical. One example from Alameda County is included provisionally; the prothoracic groove is a little less developed, but I think this is only an individual variation.

H. nitidiventris n. sp.

Oval, convex, deep blue, polished and strongly shining both above and beneath. Antennæ rather slender, longer than half the body, piceous, basal joints paler, the third and fourth equal in length. Eyes small, not prominent, their width as seen from the front but little more than one-fourth the interocular width; frontal tubercles flat, vertex smooth, frontal carina moderate, acute. Prothorax about one-fourth wider than long, sides evenly arcuate, base but slightly wider than the apex, basal margin evenly arcuate from side to side, hind angles minutely dentiform and prominent, front angles thickened and obliquely truncate, basal groove very deep and entire, surface very sparsely, barely visibly punctulate, a few coarse punctures in the antero-lateral region. Elytra one-third longer than wide, fully three-fourths wider than the prothorax, and a little less than three times as long; disk broadly not strongly impressed behind the humeral umbone, punctuation fine, sparse, becoming obsolete apically. Body beneath shining and very sparsely and finely punctate. Length $2\frac{3}{4}$ mm.

El Taste, Lower California. One example, collected by Mr. Beyer.

By the deep entire prothoracic groove this species will be associated with *ignita* and allies. It may at once be separated by its small size, small eyes, which are but little more prominent than the postocular parts, and the shining ventral surface. This is possibly the insect recorded by Horn as *ignita* in the Lower California List.

H. convicta n. sp.

Elongate oval, twice as long as wide, cupreous, moderately shining, head distinctly, prothorax and elytra obscurely alutaceous. Antennæ stout, two-thirds as long as the body, testaceous, apices of the outer joints more or less dusky; joints 2–3–4 gradually longer, fourth but little more than twice as long as wide. Eyes moderate, their width as seen from the front less than half the interocular width; frontal tubercles flat, but evidently elevated above the contiguous portion of the

vertex, which is more or less rugulose. Prothorax moderately transverse, a little narrowed anteriorly, sides arcuate, ante-basal groove broad and shallow on the disk with impressed line at bottom, terminating in a fovea at each extremity; surface finely not closely punctate. Elytra punctate as in *ignita*. Beneath dark cupreous, alutaceous, moderately punctate. Length 3 mm.

California; Redondo (type) and Pomona.

The last ventral of the male is sinuate each side, the lobe rounded, broadly impressed and more shining. *Convicta* is closely allied to *evicta*, but the latter is much larger with a polished head, dark antennæ, more alutaceous thorax, and with a better marked fovea at the end of the transverse groove. The frontal tubercles in *evicta* are scarcely at all elevated above the plane of the contiguous vertex.

H. ovulata n. sp.

Elongate oval, blue, shining, upper surface finely alutaceous and sparsely finely punctate, the elytral punctures scarcely coarser than those of the prothorax. Antennæ piceous, longer than half the body, evidently thickened apically, joints 2–3–4 gradually longer, the fourth three times as long as wide. Eyes not prominent, their width as seen from the front about one-third the interocular width; frontal tubercles rather broad, frontal carina obtuse, vertex smooth. Prothorax unusually elongate, but slightly more than one-fourth wider than long, very little narrowed in front, sides very feebly arcuate, narrowly margined, basal margin bisinuate each side, basal groove faint. Elytra oval, humeri not prominent, no post-humeral impression. Body beneath dark blue, alutaceous, more coarsely punctate than above. Length, 4.3 mm.; width, 1.8 mm.

Cañon City, Colorado.

The unique type is a ♂ having the lobe of the last ventral segment flattened and shining, a little impressed at tip and with a shallow impressed line extending the entire length of the segment.

By Horn's table this species would fall with *tombacina* and *marevagans* because of the apically thickened antennæ, and the fourth antennal joint longer than the third. Its more oval form, however, allies it to *californica* and *obliterata*. It is much more finely alutaceous and more shining than the latter, and the prothorax is more elongate and the general form narrower than in either; the prothorax is also much more finely margined than in *tombacina*, *marevagans* or *obsoleta*, being about the same as in *californica*.

H. ludoviciana n. sp.

Oblong ovate, a little wider behind, dark steel blue, moderately shining; antennæ and legs entirely rufotestaceous. Antennæ but little more than half the length of the body, third joint nearly as long as the fourth, second much shorter. Prothorax scarcely one-third wider than long, base but little wider than the apex, sides subparallel and feebly sinuate in basal three-fifths, thence broadly rounded and a little convergent, side margins moderate, surface shining and sparsely punctate, ante-basal impression almost obliterated except its extremities. Elytra much wider at base than the prothorax, humeral umbone rather prominent, disk broadly tumid on each side of the suture near the base, surface minutely subobsoletely alutaceous, rather sparsely punctate, more coarsely at base, very finely at apex, the punctures showing a tendency toward a serial arrangement, especially toward the base. Body beneath black, very finely punctulate, dull, pubescent. Length, 4.3 mm.; width, 2.2 mm.

Morgan City, Louisiana (Wickham).

By its pale legs and antennæ, and nearly obsolete basal impression of the prothorax this species will stand near *opulenta*, which differs in color, and in having the prothorax much wider basally, the elytra not wider at base than the base of the prothorax, and with broadly rounded humeri. The form in *ludoviciana* is rather strikingly suggestive of certain *Luperodes*, e. g., *meraca* and *lecontei*, except in being a little more widened posteriorly.

H. testacea n. sp.

Elongate oval, convex, entirely testaceous, head and prothorax strongly shining, elytra minutely alutaceous, moderately shining. Antennæ half the length of the body, joints 3 and 4 equal, the third perhaps a trifle longer than the fourth, each barely twice as long as wide. Eyes moderate, their width as seen from the front about one-third their distance apart; frontal tubercles small, well separated; frontal carina moderate, vertex smooth. Prothorax moderately transverse, distinctly narrowed in front, side margin very fine, ante-basal groove feeble, punctuation fine, rather sparse. Elytra oval, not appreciably wider at base than the base of the thorax, umbone not prominent, punctuation a little coarser and closer than on the thorax, not much finer apically. Beneath moderately punctate, alutaceous. Length, 3.8 mm.; width, 1.9 mm.

Big Springs, Texas (Wickham). A single example.

The entirely pale color, which does not appear to be due at all to immaturity, will separate this from any other species

of our fauna. *Rufa* is much broader and less convex, and has black legs and antennæ. The punctuation, especially of the elytra, is distinctly dual in size.

H. foliacea Lec., and **H. punctipennis** Lec.

A comparison of the types of these two species shows them to be practically identical, the structure of the last ventral in the males being virtually the same notwithstanding Horn's statement of difference. The name *punctipennis* was first given by LeConte in MSS., and reference is made to it in the description of *foliacea;* the latter, however, was published first and must prevail.

HEMIGLYPTUS Horn.

This genus is here mentioned in order to call attention to a somewhat serious error in Horn's Monograph of the Halticini. The genus was erected for the *Crepidodera basalis* of Crotch because of the presence of a terminal spur on all the tibiæ, and it is said by Horn to differ in this respect not only from the other species of *Crepidodera*, but from all other genera of the Halticini. In another place he says that all the tibiæ are thus armed in *Blepharida* and *Hemiglyptus* only. A careful examination shows that the terminal spur is present on all the tibiæ of all species of *Crepidodera* in my collection, and furthermore, not only *Blepharida*, but several other genera are similarly equipped. The spurs of the front and middle tibiæ are it is true very small and difficult to detect in so small an insect as a *Crepidodera*, but they may be seen at a glance in the larger species of *Haltica* and *Systena*. Although the genus *Hemiglyptus* cannot stand on any peculiarity of tibial armature, it may properly be retained because of a number of divergencies from typical *Crepidodera*. notably the confused elytral punctuation.

CREPIDODERA Chev.

C. pallida n. sp.

Elongate oval, entirely testaceous, shining. Antennæ half as long as the body, rather slender, joints 3–4 subequal, outer joints very gradually slightly longer, the tenth more than twice as long as wide. Frontal tubercles and carina moderate. Prothorax one-fourth wider

than long, not narrowed in front, sides broadly evenly arcuate, a little sinuate at base and behind the front angles, which are obliquely truncate; ante-basal impression deep, limited each side by a short longitudinal one; disk sparsely finely punctate at middle, broadly smooth laterally, basal impression more strongly punctate at bottom. Elytra oval, three-sevenths longer than wide, nearly one-half wider than the prothorax, striæ not impressed, consisting of elongate punctures, becoming obsolete apically except near the suture; intervals flat, impunctate, the marginal one wider. Prosternum coarsely densely punctate at middle, the propleuræ smooth; metasternum and abdomen finely transversely wrinkled and finely punctate, finely pubescent. Length, 3.6 mm.; width, 1.7 mm.

Castle Crag, Northern California. Two examples collected by Dr. Fenyes.

This fine species is larger than any previously described from our fauna, and differs from all others in the uniform pale reddish testaceous color. It is most nearly allied to *robusta*, but is more elongate, with more slender antennæ, smoother prothorax and less coarse elytral strial punctures. The striæ are inclined to be a little irregular or confused in *pallida;* the ninth stria is more distant from the margin than from the eighth, in which respect it agrees with *robusta* only.

SYSTENA Chev.

S. sexnotata n. sp.

Subdepressed, broader behind, pale yellow, strongly shining, elytra each with a subsutural spot near the base and two others in a transverse line at the middle, black. Antennæ slender, a little longer than half the body, outer joints infuscate, third joint not quite as long as the fourth. Head smooth at middle, minutely punctate toward the eyes, prothorax scarcely visibly punctulate; elytra finely, lightly, not densely punctate. Body beneath less shining, sparsely punctulate and sparsely pubescent. Length, 4.8–5.5 mm.; width, 2.5–2.7 mm.

Alpine, Texas (Wickham).

Very distinct from any of our previously discribed species by its large size, color, and posteriorly widened subdepressed form. It seems closer to the Mexican *variabilis* than anything else, but this last is said to have the third and fourth antennal joints equal, and the elytra very closely punctate. In some specimens of *sexnotata* the outer edge of the front and middle tibiæ, and the apex of the hind femora are infuscate, but no other variation is observable in the five specimens at hand.

BRUCHIDÆ.

BRUCHUS Linn.

Within the last few years no less than twenty species have been added to our fauna in this genus. Among these are a few previously known Mexican species which have turned up on our side of the border, but the greater number have been recently described by Mr. Schaeffer from collections made at Brownsville, Texas, and in Southern Arizona. That our resources are not yet exhausted is evident from the fact that after carefully checking off the recently added forms, there still remain in my collection some seventeen undescribed species, the most of which will be made known in the following pages. Many of Mr. Schaeffer's species are fine strongly characterized forms which may be easily identified from the descriptions; on the other hand the greater number here described are relatively small and obscure, which taken together with the fact that nearly forty species have now been added since our latest synopsis, has prompted me to prepare new tables and add some notes and corrections.

In this brief survey I have followed the Horn system of division into groups while recognizing the fact that this in some cases does violence to a natural arrangement of the species.

Group VI, which was based on depauperate individuals of Group VII, I have combined with the latter, and I have interpolated VIIIa to contain a few species having four denticles in addition to the longer femoral tooth. In a more scientific division of the species it is probable that all of Horn's groups after the fifth should be united, the number of denticles serving merely as a clue to identification within the group.

To facilitate the use of the following tables I give below, with the slight modification above mentioned, Horn's system of grouping.

Thorax with tooth at middle of side.
  Hind femur with tooth on outer side only.....Group I.
Thorax not toothed at sides.
  Disc of thorax elevated with median groove.....Group II.
  Disc of thorax simply convex.

Hind femur with a tooth on both inner and outer margins. Group III.
Hind femur mutic; antennæ pectinate or flabellate in the ♂. Group IV.
Hind femur with one tooth only, on inner margin .....Group V.
Hind femur with one tooth, and one or more commonly two denticles .....Groups VI–VII.
Hind femur with one tooth and three denticles.....Group VIII.
Hind femur with one tooth and four denticles.....Group VIIIa
Hind femur with a few small denticles only.....Group IX.

Group I.

This Group includes only two species *pisorum* and *rufimanus*, the former the well-known cosmopolitan pea weevil, the latter first recorded by Horn as having been reared from pea pods imported from Switzerland. I have seen no native specimens of *rufimanus*, and do not know whether the species has become established with us. The two species are closely allied and are briefly separated by Horn thus:

Thorax behind lateral tooth sinuate .....**rufimanus** Sch.
Thorax behind lateral tooth not sinuate.....**pisorum** Linn.

Only a single Italian specimen of *rufimanus* is before me, but judging from this the above distinction is not very marked, and I would suggest the following:

Tooth of hind femur ill-developed, femora (except at base) and tibiæ of the anterior legs rufous.....**rufimanus.**
Tooth of hind femur long and acute, front tibiæ and apical portion of middle tibiæ rufous.....**pisorum.**

Horn says that the middle tibiæ of the male are more or less arcuate and with a small acute tooth on the inner margin near the tip. I find in males of *pisorum* that the middle tibiæ are distinctly sinuate internally, the external margin only slightly arcuate, and the inner apical angle with a moderately long spur. I do not detect any tooth on the inner margin near the tip, and unless Horn's statement applies to *rufimanus* alone, it is seriously lacking in precision.

Group II.

The following species agree in having the disk of the prothorax uneven, though very variably so. *Mimus* differs

rather markedly in type from the other three by its more depressed form, more widely separated eyes, stouter more numerously dentate thighs, somewhat uneven elytral disk and broader scutellum:

Disk of prothorax with both median and dorso-lateral prominences; prevailing color brown; thighs very stout, armed with four acute teeth, decreasing in length posteriorly. (Middle States to Kansas and Texas.).....**mimus** Say.

Disk of prothorax without sublateral tuberculations; hind thighs unidentate; prevailing colors black and white.

Eyes emarginate to middle, antennæ less slender, outer joints subquadrate or distinctly transverse.

Disk of prothorax more strongly tuberculate posteriorly than anteriorly, legs bicolored, elytra tessellate. (Phœnix and Pinal Mountains, Arizona.).....**arizonensis** Schf.

Disk of prothorax strongly gibbous in front, feebly tuberculate posteriorly; legs pale rufous, the tarsi dark; elytra with large median and apical black spots. (Arizona, Utah, California.).....**gibbithorax** Sch.

Eyes very deeply emarginate; antennæ slender, all the joints longer than wide; prothoracic tuberosities subequal but feeble; legs black; elytra with a conspicuous lateral median black spot. Texas (Brownsville and San Diego)..**texanus** Schf.

B. mimus Say.

The large oval smooth space on the pygidium is characteristic of the female rather than the male, as stated by Horn.

Group III.

Three more or less dissimilar species, *chinensis*, *quadrimaculatus* and *sordidus*, have constituted this, the third Group in the Horn system, characterized by a single tooth on both the inner and outer margins of the hind femur. In *chinensis* (*scutellaris* Fab.) and *quadrimaculatus* the two teeth are of about equal length, the outer one, however, being distinctly stouter and more triangular. In *sordidus* the outer tooth is always much shorter than the inner and often ill-defined. I have, therefore, transferred it to Group V, with which it agrees well in general habitus, and to which specimens with undeveloped external tooth would naturally be referred. In *pruininus* of this group there is a more or less obvious angulation of the outer margin of the femur which may be

quite as distinct as in many specimens of *sordidus*, in fact the two species seem quite closely allied. *Chinensis*, by its short, thick, cuboidal form, pectinate male antennæ, vertical pygidium and short intermediate ventral segments is manifestly allied to the species of Group IV. The affinities of *quadrimaculatus* are probably more nearly with *chinensis* than any other of our species, but it differs notably in its longer more depressed form, more oblique pygidium and simple male antennæ.

Horn was probably correct in considering *biguttelus* Sch. a dark colored male of *chinensis*, *sinuatus* Sch. a form of *quadrimaculatus*, and *maculatus* Fab. identical with *quadrimaculatus;* these names, therefore, should be dropped from our list. *Ambiguus* Sch. is still unknown to us, and its position in this group, as Horn remarks, is not quite certain, though very probable because of the comparison with *quadrimaculatus*. Our species may be briefly characterized as follows:

Front carinate, prothoracic lobe with two short confluent spots of white pubescence, one on either side of the median groove, elytra varicolored, fourth and fifth elytral striæ shortest, femoral teeth subequal in length.

Form short and thick, antennæ of ♂ pectinate, pygidium perpendicular, white hairs of thoracic lobe with ivory lustre (Cosmopolitan species).....**chinensis** Linn.

Form more elongate and depressed, antennæ of ♂ not pectinate, pygidium more or less oblique at base, white hairs of thoracic lobe not distinctly eburneous. (Southern States).
quadrimaculatus Fab.

Similar to *quadrimaculatus*, but more than twice as large. (Louisiana.).....**ambiguus** Sch.

Group IV.

The species of this group are strongly characterized by their robust quadrate form, pectinate or flabellate male antennæ, very large eyes which are almost approximate in the male, narrowly separated in the female; perpendicular pygidium, ventral segments 2–4 very short, together not or scarcely longer than the first segment behind the coxal plates; fourth and fifth elytral striæ short, attaining about the apical

fourth; basal joint of hind tarsus very long. Only females of *crenatus* are known, but the male will probably prove to have the approximate eyes and pectinate antennæ of the group. Our species are not numerous, and may be separated as follows:

Hind femur not serrate beneath.

Elytra with rows of coarse, deep, perforate punctures; hind tibia bicarinate externally, the terminal spur long and stout. (Georgia, Texas).....**coryphæ** Oliv.

Elytral striæ normally punctate, hind tibiæ unicarinate externally, terminal spur short.

Elytra a little narrowed behind, black with a large red spot or vitta; pygidium densely white pubescent with black spots; size larger.

Maximum length of antennal rami (♂) nearly equal to the width of the prothorax, discal spots of pygidium rounded, separated; legs black. (New Jersey to Manitoba and Colorado). **discoideus** Say.

Maximum length of antennal rami (♂) not or but little more than half the thoracic width, discal spots of pygidium transverse and confluent; legs wholly or in part rufous (Lower California).....**leucosomus** Sharp.

Elytra parallel, reddish-brown, more or less maculate about the margins with black, pygidium without spots; size smaller. (Arizona, S. E. California.).....**impiger** Horn.

Hind femur serrate or crenate beneath on the inner margin.

Black, maculate with reddish-brown, pubescence variegated; size smaller (2–2¼ mm.). (Southern Arizona). **serratifemur** Schf.

Black throughout, pubescence gray, size large (4 mm.). (Southern Arizona.).....**crenatus** Schf.

Group V.

Of the thirteen species tabulated below, three—*simulans*, *subæneus* and *pygidialis*—are unknown to me in nature. Judging from the descriptions the first of these is typical of the group, the second is perhaps fairly so, and the third, by its longer antennæ and perpendicular pygidium seems somewhat out of line. Of the remaining species *ulkei* is decidedly abberant, its affinities being with *amicus* and allies of the following group; while *pruininus* and *sordidus* are divergent in their less oblique pygidium, longer posterior tibial mucro, and notably in having the fifth and sixth elytral striæ shortest,

instead of the fourth and fifth as in all the typical species of the group. In this latter particular *ulkei* also agrees with *pruininus* and *sordidus* as might be expected from its affinities with Group VII, in which this is the prevailing style of striation.

Vertex with subtriangular, glabrous, impunctate area; prothorax and broad triangular sutural area very densely whitish pubescent, sides of elytra black, more broadly so posteriorly; size large (4–5 mm.); form more elongate. (Arizona.)
ulkei Horn.

Vertex without glabrous impunctate area, pubescence never very dense; size smaller (2–3½ mm.); form broader.

Elytra black with rufous spots or spaces.

Rufous spot transverse, submedian, nearer the base than the apex, attaining the sides but not or scarcely the suture.

Hind legs black, antennæ black except at base, elytral spots less narrowly separated at the suture, size larger—about 3 mm. (New Jersey, Tennessee, Missouri, Kansas.)
bivulneratus Horn.

Legs and antennæ rufous, elytral spots very narrowly separated at suture, size smaller—but little over 2 mm. (Southern Arizona.).....**auctus** n. sp.

Rufous spot variable but normally longitudinal and elongate.

Form more depressed, size small (2 mm.), antennæ and legs entirely red, rufous spot involving the whole elytron, except a narrow basal margin and the sutural edge; varies with the elytra black, having a very small diffuse median pale spot. (Southern California.).....**discopterus** n. sp.

Form stouter, size larger—about 3 mm.—antennæ black except at base.

Legs red except base of hind femora, elytra in great part rufous, the base, apex and suture, the latter more widely at base, black. (Texas, New Mexico, Arizona.)
discolor Horn.

Four anterior legs rufous, hind legs black.

Rufous spot of elytra emarginate at sides, prothorax more densely punctate and dull, terminal spur of hind tibia equal in length to the thickness of the first tarsal joint. (Arizona, Lower California.).....**limbatus** Horn,

Rufous spot usually smaller, sometimes confined to the outer apical angle, not emarginate externally; prothorax less densely punctate, shining; spur of hind tibia short, about half as long as the thickness of the first tarsal joint. (New York to Dakota and Texas.).....**cruentatus** Horn.

Legs entirely black, rufous spot large, apical. (Southern Arizona.).....**simulans** Schf.

Elytra entirely black.

Elytral pubescence uniform in color and distribution, surface without trace of æneous lustre.

Pygidium unicolorous.

Eyes flatter than usual, spur of hind tibia short, about half as long as the width of the first tarsal joint, pubescence sparser, legs variable in color. (Middle States).....**nigrinus** Horn.

Eyes normally convex and prominent, spur of hind tibia a little longer than the width of the first tarsal joint, pubescence denser, four anterior legs pale rufous, hind legs black. (Arizona, Southern California.).....**pruininus** Horn.

Pygidium with two or three basal white spots. (Southern Arizona,).....**pygidialis** Schf.

Elytral pubescence variegated.

Surface without æneous lustre, eyes normally prominent, front not carinate. (Brownsville, Texas, to Lower California.) **sordidus** Horn.

Surface lustre æneous, eyes flatter, front carinate. (Texas.) **subæneus** Schf.

B. ulkei Horn.

This species of the same form as *amicus* of the following group, with which it agrees in the peculiar glabrous impunctate area of the vertex; the eyes, however, are normally convex. It looks much out of place in the present group, and is tabulated here merely because of the dentation of the hind thighs.

B. nigrinus Horn.

Except for the absence of the red elytral spot, this could not possibly be separated from *cruentatus*, and I believe it to be only an immaculate variety as already hinted by Mr. Schaeffer. The legs are quite variable in color, being either entirely black with the front and middle tibiæ rufescent, or with the four anterior legs pale and the hind femora and tibiæ bicolored.

B. auctus n. sp.

Very close to and perhaps only a variety or race of *bivulneratus*, from which it differs in the generally smaller size and bright rufo-testaceous legs and antennæ, the latter sometimes with the intermediate joints somewhat infuscate. The pubescence of the pronotum is distinctly bicolored, being ochreo-fuscous at the middle of the disk, changing to

cinereous laterally, more conspicuously so in an anterior and a posterior sublateral spot. In *bivulneratus* the pronotal pubescence is nearly uniform in color. Length, 2.2 mm.; width, 1.4 mm.

Santa Rita Mountains, Arizona. Taken by Prof. Snow and by Hubbard and Schwarz.

B. discopterus n. sp.

Moderately stout, black, elytra rufotestaceous with the sutural interspace and base narrowly black; antennæ and legs entirely pale rufotestaceous; pubescence rather sparse, uniformly ochreo-cinereous. Antennæ short, not passing the humeri, very strongly incrassate, fourth joint as wide as long, 5–10 transverse, the outer ones about twice as wide as long. Eyes moderate, separated by about their own width. Head finely closely punctate and dull, front not carinate. Prothorax a little wider than long, conical, sides feebly evenly arcuate, not appreciably sinuate behind, punctuation close and rather coarse, finer punctures not very evident. Scutellum short, apparently emarginate behind, clothed with denser pubescence. Elytra as wide as long or very nearly so, sides broadly arcuate, striæ fine, evidently punctate, intervals flat, finely rugoso-punctate. Pygidium thinly nearly evenly pubescent, rather coarsely and closely not very shallowly punctate. Hind thighs moderate, armed with a single small acute tooth near the apex; hind tibiæ feebly obtusely carinate externally, the inner apical mucro short, not apparently longer than the other marginal denticles. Length, 2 mm.; width, 1.2 mm.

Elsinore, Southern California (Prof. C. F. Baker).

With the type I place a second specimen from the same source and similarly labeled, which agrees so perfectly in most respects that I can scarcely doubt their identity. Both specimens appear to be males, but of this I am not certain. This second example is a little more robust and with slightly stouter hind thighs armed with a longer tooth; the color is black, the elytra with only a small diffuse median pale spot on each elytron, the pubescence ochreo-cinereous in a broad transverse fascia on the elytra, but anteriorly and apically it is dark and unconspicuous, resembling in this latter respect *bivulneratus*. As in *bivulneratus* the elytra seem to be a little impressed along the suture in this second specimen, but not appreciably so in the type.

The species is obviously related to *bivulneratus*, but is smaller, less stout, the prothorax less transverse, the antennæ and legs entirely pale, the median line of the prothorax not or scarcely impressed at base.

Group VII.

As already stated, Group VI of Horn will be included here. Of the three species referred to it, *desertorum* is only a small form of *prosopis*, and usually has the hind femora armed with two denticles, while *aureolus* and *pauperculus* may have either one or two denticles as was recognized by Horn, who tabulated them in both groups. The number and size of the femoral denticles is like all other characters subject to variation, which usually manifests itself as a reduction in size and occasionally a complete loss of a denticle in the smaller individuals. More rarely an extra denticle may appear, as I have observed in *musculus* and *obtectus*, where there are not infrequently three present, though the normal number is evidently two. *Exiguus* of the following group, though typically with three denticles, shows often only two, and thus would be referred to the present group, the tabular characters leading to *floridæ*, which indeed I am inclined to believe is really not distinct from *exiguus*.

The species of this group are about as numerous as in all the others together. The form is never very thick and cuboidal, and is usually distinctly more depressed and elongate than in the other groups. The antennæ are never flabellate or pectinate, rarely strongly serrate, and seldom reach as far as the middle of the elytra; they attain their greatest development in *pectoralis*, *bisignatus*, *macrophthalmus*, *distinguendus*, *subserripes* and *inquisitus*. The fifth and sixth elytral striæ are shortest in nearly all species, the only exceptions among the species known to me being *bisignatus*, *subserripes* and *alboscutellatus*, all of which are aberrant in the group in at least one other respect. In quite a number of species the first ventral segment of the male is sexually modified. In *perforatus* and *lobatus* the surface is concave at middle and produced apically in the form of a broadly rounded porrect or slightly deflexed lobe. In *aureolas*, *fraterculus*, *collusus*, *perplexus*, *pullus*, and presumably in *mixtus*, the central area, which may or may not be distinctly flattened or slightly concave, is margined at sides, and more especially at apex with longer hairs, and there is near the base a small more or less

distinct fovea, which is more densely sculptured and pubescent. In these species, while there is no projecting lobe, the posterior margin of the segment is usually arcuately prominent at middle, which peculiarity is generally visible in some degree also in the females. In *pulloides*, *biustulus* and *fumatus* the longer hairs are scarcely evident, but the fovea can usually be discerned.

The following table will serve fairly well for the identification of the species now known, but I have been unable to arrange them in a satisfactory linear series; indeed, I doubt if such an arrangement is possible:

1. Vertex with short, broadly transverse, subtriangular, glabrous, impunctate area; body elongate, pygidium strongly oblique, apical spur of hind tibia short; species of more than average size.
   Very elongate, depressed, last ventral concave, more strongly so in the ♂, and in both sexes nearly as long as the three preceding. (Texas to Lower California.) **protractus** Horn.
   Less elongate and more convex, last ventral not concave, about as long as the preceding in the ♂, longer but not exceeding the two preceding in the ♀.
      Black, prothorax and base of elytra sometimes rufous or rufescent, pubescence uniformly cinereous, eyes flattened and not more prominent posteriorly than the sides of the head. (Texas, Arizona.) ..... **amicus** Horn.
      Ferrugineous or brown, pubescence brown variegated with grayish lines and spots; eyes normally prominent. (Brownsville, Texas.) ..... **sallæi** Sharp.
2. Vertex without glabrous impunctate area.
   Body above wholly or in great part rufotestaceous to ferruginous ..... 3.
   Body above wholly or in great part black ..... 4.
3. Scutellum elongate oblong, nearly twice as long as wide, pygidium strongly oblique.
   Pygidium of ♀ with two longitudinal parallel, dark, glabrous impressions near the apex; fourth antennal joint of ♂ not or but slightly wider than the third. (Texas to Lower California.) ..... **uniformis, desertorum, prosopis** Lec.
   Pygidium of ♀ without impressions; antennæ more elongate, the fourth joint of the ♂ nearly twice as wide as the third. (Texas.) ..... **prosopoides** Schf.

Scutellum much less elongate, either subquadrate, rounded or transverse.

Eyes large, narrowly separated on the front, the latter carinate between them; antennæ—especially of the ♂—long and rather strongly serrate.

Prothorax, under surface, base of hind thighs and joints 5–10 of antennæ, black; elytra rufous with lateral black spot. (Kansas, New Mexico.).....**bisignatus** Horn.

Entirely ferruginous, either uniformly clothed with pale pubescence, or with some darker spots on some of the elytral intervals. (Brownsville, Texas.)
macrophthalmus Schf.

Eyes smaller and more distant, separated as a rule by about their own width.

Pubescence more or less variegated.

Elytra conspicuously tessellate with elongate spots of black, white, and luteous pubescence. (Southern Arizona.)
speciosus Schf.

Elytra much less conspicuously variegated with luteous or cinereous and darker ochreous or brownish pubescence.

Scutellum small, rounded; apical spur of hind tibia short, about one-sixth the length of the first tarsal joint. (Texas.) .....**pectoralis** Horn.

Scutellum oblong, subquadrate or slightly elongate, emarginate at apex; apical spur of hind tibia moderately long, about one-fourth the length of the first tarsal joint.

Denticles of hind thighs closely approximate to the long tooth, the anterior one connate or subconnate at base with the latter. (Texas.) .....**ochraceus** Schf.

Denticles of hind thighs smaller and distinctly separated from the long tooth. (Florida.).....**floridæ** Horn.

Pubescence of elytra uniform, or with at most the faintest perceptible trace of denser spots or lines.

Scutellum transverse, size large—4 mm. (Middle States.)
inornatus Horn.

Scutellum subquadrate or slightly elongate, emarginate at apex; size smaller—always less then 3 mm.

Upper surface entirely pale.

Pubescence uniform or very nearly so throughout, males withfirst central unmodified.

Apex of posterior tibia deeply sinuate within and adjacent to the spur, the latter but little less than half as long as the first tarsal joint. (S. E. California.)
griseolus n. sp.

Apex of posterior tibia feebly sinuate near the spur, the latter scarcely one-third as long as the first tarsal joint. (Texas.) ..... **ochraceus** Schf.

Pubescence feebly condensed in a short line at the middle of the third interspace; first ventral of ♂ with a median flattened area extending the length of the segment and bordered, especially behind, with longer hairs.) Southern California.) ..... **collusus** n. sp.

Prothorax black, the elytra pale, with the suture, especially toward the base, sometimes black or piceous, the dark color often extending along the base and down the sides; pubescence rather dense, luteous or pale ochreous; first ventral of male as in the preceding species. (New Mexico, Southern California.) ..... **perplexus** n. sp.

4. Apical spur of hind tibia short or moderate in length, rarely more than one-fourth as long as the first tarsal joint..... 5.

Apical spur of hind tibia very long and slender, two-fifths to two-thirds as long as the first tarsal joint.

Robust, elytral intervals with a row of coarse punctures; apical spur of hind tibia about one-half the length of the first tarsal joint; black, irregularly cinereo-pubescent, legs all black (♂), or with the four anterior ones pale (♀). (Georgia, Alabama.) ..... **distinguendus** Horn.

Less stout, elytral intervals without coarse serial punctures.

Apical spur of hind tibia greatly developed, two-thirds as long as the first tarsal joint.

Black, conspicuously variegated with cinereous pubescence, a subtransverse median black spot towards the sides of the elytra; antennæ black throughout or very nearly so. (Massachusetts, District of Columbia, Tennessee.) **longistilus** Horn.

Elytral markings as in the preceding, but more feebly contrasting; prothorax more strongly rounded in front; antennæ pale at base. (Southern Arizona.) **pugiunculus** n. sp.

Apical spur of hind tibia but little less than one-half the length of the first tarsal joint.

Legs bicolored, elytra with a conspicuous blackish lateral spot. (Southern Arizona.) ..... **biustulus** n. sp.

Legs black.

Elytra with a conspicuous pale line at the middle of the third interspace; antennæ shorter and stouter, joints 4–10 as wide as or wider than long. (New Mexico.) **pulloides** n. sp.

Elytral pubescence obscurely mottled, without pale line on third interspace; antennæ more slender, basal six joints at least as long as wide. (California.)

pauperculus Lec.

5. Pubescence varied in color or irregular in distribution, legs black or piceous.....6.
Pubescence varied in color or distribution; legs pale or bicolored..7.
Pubescence uniform in color and distribution; legs pale or bicolored.....8.
Pubescence uniform, legs black.....9.

6. Scutellum oblong, slightly emarginate at apex, moderately grayish pubescent; pubescence cinereous varied with brownish-ochreous, a pale line at middle of third interspace; pygidium of ♂ moderately convex. (California.)

pullus n. sp.

Scutellum small, rounded, densely white pubescent; pubescence finely mottled, whitish; pygidium of ♂ very convex. (New Jersey, Georgia, Missouri, Louisiana.)

alboscutellatus Horn.

7. Femoral denticles distinctly separated from the long tooth.
Terminal joint of antennæ black.
Antennæ shorter, outer joints transverse, size small.
Pubescence predominantly cinereous, mottled with brownish-ochreous, all the femora in great part dark. (California.)

pullus n. sp.

Pubescence predominantly ochreous, feebly mottled, legs pale rufous except the base of the hind femora. (Utah.)

mixtus Horn.

Antennæ longer, outer joints not distinctly transverse, longer than wide in the ♂, size larger.....**inquisitus** n. sp.
Terminal joint of antennæ pale. (United States.)

obtectus Say.

Femoral denticles arising from the posterior side of the long tooth; form robust, antennæ pale throughout or with the intermediate joints a little darker. (Eastern United States.)

hibisci Oliv.

8. Prothorax with a subbasal lateral spot, and elytra with median vitta, reddish. (Arizona.).....**rufovittatus** Schf.
Upper surface entirely black.
Scutellum small, transverse; antennæ entirely pale; eyes emarginate only to middle (last two characters doubtful in *schrankiæ*).
All the femora black, size larger—2.5 mm. (Missouri.)

schrankiæ Horn.

Hind femora only black, size smaller—1.6–1.8 mm. (Southern Arizona.).....**chiricahuæ** n. sp.

Scutellum as long as or longer than wide, antennæ black with basal joints pale; eyes more deeply emarginate.

Form more robust, terminal spur of hind tibia short, first ventral of ♂ unmodified. (Brownsville, Texas.)

aequalis Sharp.

Form more elongate, terminal spur of hind tibiæ moderate, about one-fifth the length of the first tarsal joint; first ventral of ♂ flattened at middle, the flattened area margined with longer hairs. (Western United States.)

aureolus Horn.

9. First ventral of ♂ prominently lobed posteriorly.

Elytral intervals with a conspicuous series of coarser punctures, the striæ also more strongly punctate. (Montreal, Can., Michigan, West Virginia, Arizona.)...**perforatus** Horn.

Elytral intervals without obvious series of coarser punctures; striæ not distinctly punctate. (New Mexico.)

lobatus n. sp.

First ventral of ♂ without lobiform prominence.

Hind femora with a series of three minute teeth at the middle of the lower margin of the hind femora; antennæ of ♂ long and more strongly serrate. (Western Texas).

subserripes n. sp.

Hind femora without teeth at middle beneath; antennæ of ♂ moderate in length.

Form broader, more rapidly narrowed in front, first ventral of ♂ nearly or quite unmodified.

Pubescence moderately dense, elytral intervals with an evident series of coarser punctures. (Southern Arizona.)

fumatus Schf.

Pubescence relatively sparse, elytral intervals without obvious series of coarser punctures. (Massachusetts, Michigan, Tennessee.) .....**calvus** Horn.

Form narrower, more gradually attenuate in front; first ventral of ♂ flattened at middle, the flattened area margined with longer hairs and with a small foveiform impression at base.

Pubescence moderately dense, usually grayish. (Indiana to California.) .....**fraterculus** Horn.

Pubescence dense, usually luteous or yellowish-gray. (Western United States.).....**aureolus** Horn.

B. protractus Horn.

Antennæ of ♂ a little longer and stouter, last ventral deeply and broadly concave. Spur of hind tibiæ not appreciably different from the other denticles of the tibial apex. The very long last ventral is unique in our fauna. Described

from Lower California, but known to me from the desert region of Southern California and San Antonio, Texas.

B. amicus Horn.

The rather small flattened eyes constitute the most peculiar feature of this species. The scutellum is very small, relativery smaller, I think, than in any other species known to me. The coarse punctures of the pronotum are much finer and sparser than usual.

B. prosopis Lec.

This species agrees fairly well with the three preceding in general form, and especially in the strongly oblique pygidium, but departs from them and agrees with the great majority of this group in having the head punctate and pubescent throughout, the apical spur of the hind tibiæ well developed and the basal joint of the hind tarsi more distinctly arcuate. The scutellum is oblong, emarginate at apex, and more elongate than in any other of our species. I am unable to separate *uniformis* and *desertorum* from *prosopis*. They agree in all essential characters, the former differing merely in being nearly uniformly pale, and the latter in its smaller size. All these forms were described at the same time by LeConte, who remarks that they occurred together in the Colorado Desert breeding in the pods of *Prosopis* and *Strombocarpus*.*

B. bisignatus Horn.

The most important character of this specie—viz., the large eyes and narrow front, are not alluded to at all by Horn in his description. Two examples, ♂ and ♀, in my collection, taken at Albuquerque, New Mexico, by Mr. Wickham, were compared by me with Horn's type some years ago and found

* It happens that the description of *uniformis* precedes that of *prosopis* on the same page, yet I have chosen to use the latter name for the species, as being more appropriate and because it describes the usual form of the species. This course does no injustice to the describer, creates no confusion, and is a manifestly sensible one. I realize, however, that sooner or later some one, staunch in his belief that man was made for the Sabbath, will reverse the synonymy.

to be identical. If I am correct, Mr. Schaeffer's specimens of *bisignatus*, which he says do not differ from *exiguus*, must be incorrectly determined. In my pair the antennæ of the male are much longer and stouter, joints 1–4 and the terminal joint pale. The eleventh joint is wanting in the female, but is probably colored as in the male. Horn describes the antennæ as black with basal joints rufous.

B. floridæ Horn.

The type of this is strikingly suggestive of *exiguus*, and it may be an unusually large example of the latter with two instead of the typical three denticles on the hind femur. A further careful comparison with typical *exiguus* is necessary before pronouncing them the same.

B. griseolus n. sp.

Moderately robust, rufotestaceous, lower surface darker rufous or picescent except posteriorly, antennæ and legs entirely rufous; pubescence rather dense, uniformly yellowish-gray. Antennæ not conspicuously incrassate externally, joints 6–10 subequal in width and all nearly or quite as long as wide. Eyes moderately prominent, front slightly wider than the ocular width, scarcely or feebly carinate, closely finely punctate, occiput with piceous shade at middle. Prothorax wider than long, sides broadly arcuately convergent from base to apex; surface moderately coarsely not closely punctate. Elytra as wide as long, sides distinctly divergent posteriorly; striæ fine, obsoletely punctate, intervals flat without distinct sculpture; humeral callus slightly or distinctly darker, suture and side margin sometimes narrowly dusky. Hind thighs rather stout, armed on the inner edge near the tip with a long acute tooth and two rather strong denticles approximate to the tooth. Hind tibia finely carinate externally, apical spur nearly half as long as the first tarsal joint. Length, 2.5–2.8 mm.; width, 1.5–1.7 mm.

Described from seven examples taken by Dr. Fenyes at Yuma, both on the Arizona and California sides of the river.

This species would by Horn's table come next to *uniformis*, but the prothorax is wider with sides more arcuate, scutellum less elongate, pygidium less oblique, not bi-impressed at apex, last ventral shorter, tibial spur much longer. The pubescence is perfectly uniform in color and density throughout.

B. ochraceus Schf.

This species is described by its author as being clothed with uniform pale yellowish pubescence. A specimen kindly sent me for examination shows faint but unmistakable traces of three lateral darker areas on the elytra, becoming gradually evanescent inwardly. Examples in my collection from Columbus, Texas, which I think are unquestionably identical show the markings more clearly, and in one large female with the derm of darker shade, the elytral pubescence is sharply and distinctly tessellate with pale yellow and brown. In consequence of this evident variability in color I have tabulated the species in two positions. The relative lengths and widths of the prothorax and elytra are quite inexact as given in the description, the longer dimension being overestimated in each instance. In the specimen at hand the prothorax is but slightly over one-fourth wider than long, and the elytra are two-fifths longer than the basal width.

B. collusus n. sp.

Form nearly as in *aureolus* and *pauperculus*. Piceous, elytra pale rufotestaceous, the prothorax varying to dark rufous or rufo-piceous, the elytra sometimes with the suture narrowly blackish, humeral callus blackish at summit. Pubescence pale ochreous, moderately dense, not or but feebly variegated. Antennæ piceous, basal four joints pale, not very strongly incrassate, the outer joints distinctly transverse and feebly subserrate. Eyes not very prominent, separated on the front by a distance which is barely equal to their own width. Front not carinate, finely punctate; occiput more closely and less finely punctate. Prothorax conical, a little wider than long, sides slightly sinuate behind and a little rounded anteriorly; surface with moderately numerous coarse punctures. Elytra a little widened behind, finely striate, intervals minutely subrugosely punctate. Pygidium distinctly rather closely punctate. Legs pale rufotestaceous, the last two tarsal joints blackish, the extreme apex of the hind tibiæ and base of hind femora sometimes blackish. Hind thighs moderately stout, armed with a tooth and two small denticles. Apical spur of hind tibia less than one-fourth as long as the first tarsal joint. Lenth, 1.8–2.5 mm.; width, 1.1–1.4 mm.

The pubescence is rather dense on the prothorax and pygidium, slightly less so on the elytra, where the surface color becomes somewhat more evident. In some specimens there is a slight trace of a paler line at the middle of the third

interspace, and the faintest perceptible indications of the other marking that usually accompany this; in these there is also a more or less evident pale median line on the prothorax.

The type is one of a series of four specimens taken at Deep Creek—6500 feet—in the San Bernardino Mountains in California.

The affinities of the present species are with *mixtus* and *aureolus*, and it may prove to be a variety of one or the other. For the present, at least, *mixtus* may be separated by the entirely black upper surface, and *aureolus* by the slightly denser pubescence, which is always uniform in color throughout; in typical *aureolus* the legs are black.

B. perplexus n. sp.

Form not very robust, nearly as in *aureolus;* black, the elytra pale rufotestaceous with the tip of the humeral umbone and frequently the base and more or less of the suture and side margins blackish; legs pale, the tarsi in great part, and sometimes the basal parts of the femora blackish. Pubescence yellowish cinereous, rather dense, and uniform throughout. Antennæ black, the basal four joints pale, outer joints moderately transverse, scarcely serrate. Head finely sparsely punctate and dull, front about equal in width to the eyes. Prothorax a little wider than long, form and sculpture as in *aureolus*. Scutellum oblong, a little elongate, emarginate apically. Elytra a little longer than wide, gradually wider apically, finely striate, striæ not distinctly punctate, intervals finely rugose-punctate. Pygidium moderately oblique in the female, less so in the male, the latter with the first ventral a little more pubescent at middle and with a very small basal rounded feebly impressed fovea, which is more densely sculptured and pubescent. Hind femora with a small acute tooth and one or two very small denticles. Apical spur of hind tibia about one-fifth the length of the first tarsal joint. Length $1\frac{3}{4}$–$2\frac{1}{4}$ mm.

The type is from Alburquerque, New Mexico (Wickham). With it are associated specimens from Highrolls, New Mexico, Bright Angel, Arizona, Palm Springs, California, and Claremont, California.

This species is closely allied to *aureolus* and *collusus*, differing from the former in scarcely any respect except color, and from the latter by its black thorax, uniform pubescence, and smaller size. Whether these differences are specific it is quite impossible to say, but they may well be recognized for the present by distinctive names.

B. distinguendus Horn.

Dr. Horn does not mention in his description of this species the very long spur of the hind tibia. The fourth antennal joint is abruptly much larger than the third, being nearly twice as wide as the latter, and subequal in length to the second and third together, at least in the male; no females are at hand. The first ventral is faintly impressed near the base in the male. The general form and mottling of the upper surface suggest *hibisci*, but the latter is at once distinguished by the short tibial spur and smaller fourth antennal joint.

B. pugiunculus n. sp.

Very closely allied to *longistilus*, but differing in so many of the smaller details that a specific name seems warranted. The size and form are nearly identical in the two species, except that in the present one the sides of the prothorax are more strongly arcuate anteriorly. The elytral pattern is of the same type in both, but is here much less sharply defined, owing to the more feebly contrasting colors of the pubescence which is gray and pale brown instead of gray and blackish brown as in *longistilus*. The spots of pale hairs on the prothorax are correspondingly indistinct and the thoracic punctuation is rather less dense in *pugiunculus*. Antennæ with basal four joints pale, the outer joints distinctly less incrassate than in *longistilus*. Tarsi blackish, the legs otherwise rufous, except the base of the hind femur. Spur of hind tibia three-fifths as long as the first tarsal joint, the latter evidently though not greatly longer than the following joints together. In *longistilus* the antennæ are entirely black, legs less completely pale, spur of hind tibia and basal joint of tarsus each relatively a little longer.

Chiricahua Mountains, Arizona. A single example collected and given me by Mr. V. L. Clemence.

B. biustulus n. sp.

Form and size of *longistilus*, black, legs bicolored, the apex of the front and middle femora, front and middle tibiæ, and hind tibiæ in apical half, pale, otherwise piceous. Surface moderately densely cinereous pubescent, varied with ochreous or brownish in much the same fashion as in the two preceding species. Antennæ not passing the humeri, piceous, basal four joints pale, fifth joint as long as wide, 6–10 transverse, the outer ones quite strongly so. Head closely punctate, front not at all carinate, eyes separated by a distance which is fuily as great as their own width. Prothorax with a narrowly divided brownish-ochreous longitudinal median stripe. Elytra with a pale line at the middle of the third interspace, before and behind this rather faint darker spots, and opposite it externally a larger transverse blackish brown spot nearly reaching the side margin, each elytron at apex also with two of the more obscure darker spots. Hind thighs

rather stout, armed with an acute tooth, and two denticles well separated from the tooth; spur of hind tibia nearly half the length of the first tarsal joint; tibia distinctly finely carinate externally for its entire length. Length, 1.7 mm.; width, .9 mm.

Santa Rita Mountains, Arizona (Snow).

Closely allied to *pauperculus* and *pulloides* in general structure and vestiture, and especially in the long spur of the hind tibia, but of more striking appearance because of the conspicuous blackish sublateral elytral spot. From *pulloides*, to which it is closest, it differs, furthermore, in its shorter antennæ (the types of both species being apparently males), bicolored legs and distinctly stouter hind femora. The hind tibiæ are in *biustulus* evidently, though finely, carinate on their outer face throughout their length; in *pulloides* the carina is evident only toward the apex, and in *pauperculus* is nearly or quite lacking.

B. pulloides n. sp.

Strikingly similar to *pullus* in form, size and markings. Entirely black, pubescence cinereous, somewhat obscurely mottled with brownish-ochreous. Antennæ rather long, passing the elytral humeri, joints 4 and 5 as wide as long, 6–10 transverse, scarcely serrate. Head dull, alutaceous, front finely not closely punctate, occiput more densely punctured; eyes separated by slightly less than their own width. Prothorax wider than long, sides moderately convergent from the base to beyond the middle, thence rounded and more strongly convergent to apex; moderately coarsely not closely punctate, cinereo-pubescent with a longitudinal median stripe of brownish-ochreous occupying the middle third and divided by a feeble imperfect longitudinal line of pale hairs. Elytra mottled nearly as in *pullus*, a somewhat conspicuous pale line at the middle of the third interspace, and before, external to and behind this spots of brownish-ochreous. Pygidium convex and feebly oblique, apex inflexed, rather densely punctate, unevenly cinereo-pubescent. Legs black throughout, hind femora not very stout, hind tibiæ feebly carinate externally, the terminal spur one-half the length of the first tarsal joint. Length, 1.8 mm.; width, 1.1 mm.

Pecos, New Mexico. One male, received from Professor Cockerell.

This species differs from *pullus* most noticeably in its entirely black legs and antennæ (perhaps not constant) and the much longer spur of the hind tibiæ. In the latter particular it agrees with *pauperculus*, with which I had at first as-

sociated it, but the latter species is still more feebly mottled, never in my experience with a conspicuous pale line on the third interspace, the antennæ pale at base and more slender, with at least the first six joints as long as or longer than wide. The hind femora in *pulloides* are armed with a small acute tooth and two very small denticles.

B. pullus n. sp.

Form and size of *pauperculus*, *aureolus* and *mixtus;* pubescence not very dense, cinereous mottled with brownish-ochreous. Prothorax with four discal brownish spots which are often obscurely defined. The most conspicuous markings on the elytra consist of a pale line at the middle of the third interspace, before, behind and external to which are oblong brownish spots, the latter transverse. Antennæ passing the humeri, stout, black, basal three or four joints pale; joints 2 and 3 a little longer than wide, 4 as wide as long, 5 distinctly transverse, 5–8 gradually wider, 8–10 equal, nearly one-half wider than long. Head alutaceous, finely punctate, eyes moderately prominent, separated by a little less than their own width; front not distinctly carinate, the median line, however, a little prominent in certain lights. Prothorax wider than long, sides feebly sinuate and divergent behind, surface coarsely but not densely punctate. Elytra about one-fifth longer than wide, sides broadly arcuate and a little divergent behind; striæ fine, intervals flat, polished, with fine punctures which tend to form rather feeble transverse rugæ. Pygidium oblique basally, convex and vertical in apical half, the tip a little inflexed, pubescence mottled, brown and cinereous, punctuation fine, subrugose. Legs sometimes entirely piceous, more often with the thighs testaceous at apex, and all the tibiæ testaceous in apical half or more. Hind thighs with a small acute tooth and two denticles which may be quite distinct or nearly obsolete. Hind tibiæ very feebly carinate on the outer face, the terminal spur slender and about one-fourth the length of the first tarsal joint. Length, 1.5–1.9 mm.; width, .8–.9 mm.

California; Ojai (type), San Diego, Catalina Island.

Closely allied to *mixtus* apparently, the latter differing in having the vestiture predominantly ochraceous and just perceptibly mottled, the legs pale rufous, except the base of the hind femora. *Pauperculus* is more obscurely mottled, and has more slender antennæ, and the terminal spur of the hind tibiæ is about twice as long.

B. inquisitus n. sp.

Elongate oval, piceous black, basal four joints of antennæ pale, legs bicolored, the front and middle femora in less, and the hind femora in more than basal half, piceous; the tibiæ pale; terminal joint of front

and middle tarsi, and the hind tarsi in great part, blackish. Pubescence not very dense, cinereous and brown or brownish-ochreous, obscurely mottled on the elytra, the pale hairs forming a short feebly defined line at the middle of the third interspace, and two very obscure irregular transverse bands before and behind the middle, the brownish spots consisting of three on the disk of each elytron surrounding the pale line of the third interspace, and three larger sublateral spots, all obscurely defined. Antennæ unusually long and slender, attaining the middle of the elytra, feebly incrassate, all the joints longer than wide, the terminal one very little longer than the tenth. Eyes moderately prominent, separated by about their own width. Head densely punctate, a small smooth spot at the middle of the vertex, front not carinate. Prothorax moderately transverse, conical, sides broadly arcuate, feebly sinuate basally, clothed rather thinly with brownish-ochreous pubescence which is not appreciably mottled, the coarse punctuation strong and close. Elytra distinctly longer than wide, sides broadly arcuate, striæ fine, feebly punctured, intervals finely subrugosely punctate. Pygidium oblique basally, vertical in apical half, pubescence cinereous, rather sparse, a little condensed along the middle, punctuation distinct but not deep. Hind thighs rather slender, armed with a tooth and two denticles; hind tibiæ not at all carinate on the outer face, the terminal spur scarcely one-third the length of the first tarsal joint. Length, 3 mm.; width, 1.6 mm.

California (Deep Creek, San Bernardino Mountains—6500 feet).

The type above described is a male. With it I have placed a specimen from Kings River Cañon which looks very similar and is probably identical. This latter is a female, and differs in being a little stouter, the smooth spot on the vertex obsolete, the antennæ a little shorter, the ninth and tenth joints nearly or quite as wide as long, the spur of the hind tibia slightly more than one-third the length of the first tarsal joint. This species looks like a large *pauperculus*, the obscure markings being of the same type, but it may be at once separated from the latter species by its bicolored legs and the very elongate antennæ and shorter hind tibial spur, especially of the male.

B. chiricahuæ n. sp.

Form not very robust, nearly as in *aureolus* and *fraterculus*, black, antennæ entirely rufotestaceous, front and middle legs except the tarsi and the extreme base of the middle femora, rufotestaceous; hind legs black. Pubescence not very dense, uniformly cinereous throughout. Antennæ as long as or slightly longer than the head and prothorax,

moderately incrassate, scarcely serrate, the penultimate joints about one-half wider than long. Eyes rather large, the emargination extending beyond the middle, separated by a distance evidently less than their own width. Head finely closely punctate, front feebly obtusely carinate. Prothorax only about one-fourth wider than long, sides broadly arcuately convergent, faintly sinuate near the base, surface coarsely rather closely punctate. Scutellum slightly transverse, more densely pubescent. Elytra slightly longer than wide, sides moderately arcuate, humeral umbone not prominent; striæ fine, scarcely punctured; intervals flat, finely subrugosely punctate. Pygidium vertical, convex, tip inflexed, punctuation somewhat coarse but vague. Hind femora rather stout, armed with an acute tooth and two rather strong denticles closely approximate to the tooth. Apical spur of hind tibia short. Length, 1.6–1.65 mm.; width, 1 mm.

Chiricahua Mountains, Arizona. Two examples, probably both males, collected and given me by Mr. V. L. Clemence.

The present species is closely related to *schrankiæ*, and may possibly not be distinct. The latter spcies is from Missouri, is considerably larger (2.5 mm. according to Horn), and has all the femora black. A specimen from Williams, Arizona, in my collection is probably properly placed with the present species although the antennæ are pale at base only.

B. perforatus Horn,

As in *distinguendus* the antennæ of the male are more than ordinarily long and stout, the fourth joint much longer and wider than the third. The male in *perforatus* has the first ventral concave at middle and with a well-marked lobe bearing longer hairs at the middle of the posterior margin. In the female the first ventral suture is posteriorly arcuate at middle. A similar male character exists only in *lobatus* so far as I know. The coarse serial punctures of the elytral intervals, so conspicuous in *perforatus*, and only a little less so in *distinguendus*, ally these two species and distinguish them from all neighboring forms.

B. lobatus n. sp.

Elongate ovate, black, uniformly moderately densely cinereous pubescent, very similar in nearly all respects to *fraterculus* and *aureolus*, and only separable with certainty by the abdominal sexual characters of the male. In this sex the flattened area of the first ventral is distinctly longitudinally concave, entirely devoid of any basal fovea or small densely punctured area (which is characteristic of *fraterculus* and *aureolus*), and with the apex produced in a thin slightly deflexed laminiform lobe which is narrowly truncate at tip. The antennæ are long and subserrate, nearly attaining the middle of the elytra, the first

three joints paler below, piceous above, the fourth one-half longer than, and nearly twice as wide as the third. The eyes are widely separated, the front feebly obtusely prominent and impunctate along the median line. Length, 2.3 mm.; width, 1.35 mm.

Los Vegas Hot Springs, N. Mex. (Barber and Schwarz).

With the male type I have placed a smaller female specimen from the same locality, which from its association probably belongs here, but is not different apparently from ordinary *aureolus*.

B. subserripes n. sp.

Moderately robust, form nearly as in *fraterculus*, black, uniformly, moderately densely cinereo-pubescent. Antennæ (♂) long and stout, reaching the middle of the elytra; basal four joints piceous, paler beneath, together but little longer than the fifth; second obconical, about as wide as long, third a little transverse, fourth very short and strongly transverse, fifth abruptly, very much larger, about as wide as long, 6–10 similar, subequal or slightly decreasing in width, subserrate. Eyes moderate, emarginate for two-thirds their length, separated by fully their own width. Head finely, closely punctate and dull. Prothorax conical, a little transverse, sides nearly straight, surface coarsely rather densely punctate. Scutellum slightly elongate, emarginate at tip, more densely pubescent. Elytra as wide as long, finely striate, intervals finely rugosely punctate. Pygidium a little more densely pubescent, subvertical, convex, moderately coarsely, but not deeply punctate. Hind femora thick, armed near the knee with an acute tooth and two somewhat distant denticles, and also on the inside, near the middle of the lower margin a series of three distant, small, acute teeth, directed backward. Apical spur of hind tibia slender and about one-third as long as the first tarsal joint. The female differs from the male only in the shorter antennæ, which are less dilated and more feebly serrate externally. Length, 1.75–2.5 mm.; width, 1.15–1.35 mm.

Ysleta, Texas.

This species is quite similar in appearance to *fraterculus*, but differs from it in the longer and stouter male antennæ, and from all species known to me except *musculus*, by the small acute teeth at the lower margin of the hind femora.

B. fumatus Schf.

In a male of this species, sent me by Mr. Schaeffer, there appears to be on the first ventral a very small, feebly impressed fovea, which is more finely, densely sculptured and pubescent; there is, however, no apparent flattening of the segment, nor any trace of the longer hairs which are present in *aureolus* and several allied species.

B. fraterculus Horn.

Typical specimens of this and *aureolus* are distinguished as indicated in the table; there is, however, in my collection, every imaginable intermediate form, and I do not think it possible to satisfactorily separate the two. The name *aureolus* takes precedence.

Mr. Schaeffer has recently written *aureolus* as a variety of *pauperculus* Lec. This is incorrect, and is probably due to an erroneous determination of the latter, which may always be separated from *aureolus* by its relatively long posterior tibial spur, and its obscurely mottled pubescence.

GROUP VIII.

The four species here tabulated agree in having typically a tooth and three denticles on the inner margin of the hind femur. Aside from this the group has no other claim to integrity, and even in this respect *exiguus* often fails. This latter species is indeed closely allied to the *aureolus* series of the preceding group. The form is the same, the fifth and sixth elytral striæ are shortest, and the first ventral of the male is similarly modified. In *musculus* and *placidus* striæ 3 and 4 are shortest, as is the rule in the groups preceding the last. *Musculus* is in several respects peculiar and not very closely allied to any other species. *Rufescens* is unknown to me except by description. Our species thus far referred to the present group may be distinguished as follows:

Color more or less rufous, legs rufous, apical spur of hind tibia of moderate length.

Smaller and less robust, the head, prothorax and more or less of the underside blackish; elytra reddish-brown with marginal dark markings; pubescence condensed in short longitudinal lines. (Florida to California.) .....**exiguus** Horn.

Black, elytra with margin, apex, and longitudinal vitta reddish. (Brownsville, Texas.).....**rufescens** Schf.

Larger and more robust, entirely rufous, elytra with two transverse series of small brown spots on the alternate intervals. (Texas, Arizona.) .....**placidus** Horn.

Black, hind femora and tibiæ black, front and middle legs and hind tarsi pale yellow; inner apical spur of hind tibia very short. (Massachusetts to Georgia and Michigan.)...**musculus** Say.

B. exiguus Horn.

Specimens before me from Florida, Ohio, Missouri, Arizona and California do not appear to be separable, and indicate this to be a variable and widely dispersed species. According to description, the types have the head and thorax black and the sides of the elytra narrowly so, but the color may become almost entirely rufous, in which case a small spot on the head, the tip of the humeral callus and the narrow sutural interspace usually remain blackish. In the Arizona and California specimeus the spur of the hind tibiæ is noticeably though not greatly longer than in eastern examples, but no other difference of moment has been noticed. The species was described from two Kansas specimens, but on attempting to compare with these some years ago I found none such in the Horn collection; in fact there were no specimens on the label, but beside it were several Arizona ones which were perhaps placed there tentatively. The number of denticles on the hind femur may be either two or three, and these vary much in development. As indicated previously, it is very doubtful if *floridæ* is distinct from *exiguus*, all of whose essential characters are those of the preceding group.

B. musculus Say.

One of the most distinct species in our fauna, and most of its pecularities have apparently escaped record. Say describes the antennæ as yellow at base and tip, and piceous in the middle. Horn says they are usually colored thus, but are often entirely pale. Judging from the material before me this difference is purely a sexual one, the males having entirely yellow, and the females bicolored antennæ. The eyes are unusually deeply emarginate, the tip of the abdomen is deflexed in the male, the hind thighs are minutely serrulate at the middle beneath (observed elsewhere only in *subserripes*), and the hind tibiæ are finely granulato-serrate posteriorly throughout their length. The contrast between the bright, yellow hind tarsus and the black tibia and femur is striking and unusual. The three denticles of the hind femur are more distant than usual from the anterior tooth, and between them may be seen in some specimens a fourth very small denticle.

Group VIIIa.

Following the Horn system of classification the three following species must constitute a separate group between VIII and IX, because of the presence of four denticles in addition to the principal tooth of the hind femur. These three species may be separated as below.

Second antennal joint about three-fifths as long as the third, body throughout piceous, pubescence dark brown variegated with whitish and ochreous spots and lines; Size very large—5–14 mm. (Brownsville, Texas; Lower California.)
julianus Horn.

Second and third joints of antennæ subequal, color brown or ferruginous.
Pubescence brown, whitish and ochreous, elytra with a conspicuous ochreous line at the middle of the third interspace; length $4\frac{3}{4}$ mm. (Arizona.) .....**ochreolineatus** n. sp.
Pubescence of elytra luteous, either nearly uniform or more often with some denuded spots which appear darker; length 3 mm. (Brownsville, Texas.).....**quadridentatus** Schf.

B. julianus Horn.

The dentiform elevations at the base of the elytra, on which Mr. Schaeffer was inclined to lay some stress, are by no means peculiar to this species, although more evident than usual because of its large size. I have observed them in *ochreolineatus*, *chinensis*, *protractus*, *ulkei*, *prosopis*, *amicus* and *placidus*. They arise at the base of the intermediate striæ and vary much in their development individually.

B. ochreolineatus n. sp.

Robust, reddish-brown, irregularly marmorate with cinereous and ochreous or brownish pubescence, so disposed as to leave at the middle of each elytron an irregular transverse dark area which is wider externally. There is a conspicuous yellow line at the middle of the third interspace, a shorter one opposite the anterior end of this on the fifth interspace, and three small basal spots of same color on each elytron. Prothorax with slightly yellowish cinereous pubescence at sides and a rather narrow line of ochreous hairs at middle. Antennæ (♀) rufous, a little darker apically, scarcely reaching the base of the elytra, strongly incrassate, scarcely serrate, penultimate joints about twice as wide as long. Eyes moderately large, emarginate to middle, separated by a distance which is about four-fifths their own width. Head densely punctate, median line of front carinate and narrowly smooth. Prothorax a little wider than long, sides strongly convergent and nearly

straight, surface rather densely coarsely punctate, the interspaces polished and scarcely punctulate. Scutellum short, transverse, moderately pubescent. Elytra as wide as long, humeri well defined, sides nearly parallel and broadly arcuate, striæ fine, distinctly, rather closely punctate, intervals finely punctulate, each with a series of distant, larger punctures. Pygidium oblique, clothed rather densely with ochreous pubescence, surface closely, coarsely punctate. Legs rufous, posterior thighs moderately stout, armed with a long tooth and four well developed acute denticles; apical spur of hind tibia about one-fourth the length of the first tarsal joint. Length, 4.6 mm.; width, 2.75 mm.

Jerome, Arizona. A single female example collected at light, and sent to Dr. Fenyes, who kindly permits me to retain the type.

Only two other species in our fauna are known with four denticles on the hind femora, vix.: *julianus* and *quadridentatus*. *Julianus* is blackish with more variegated pubescence of brown, white and ochreous, but without conspicuous yellow line on the third interspace, the pygidium with white basal spots, the antennæ with joints 8–10 abruptly blackish. *Quadridentatus* is much smaller (3 mm.), and according to description must be very much more elongate, the elytra being nearly twice as long as wide, with the sides posteriorly diverging.

Group IX.

The species of this group are small or minute, and characterized by the presence of two or three small denticles only on the hind femur. Horn placed here *macrocerus* and *seminulum*. The latter and *atomus*, described below, conform to this description in having two very small subequal well separated denticles, which in the smallest examples become so rudimentary as to be detected with difficulty.

Flavicornis Sharp, which has in recent years been taken in Arizona and Lower California, is described as having the hind femur devoid of teeth or denticles. This may be true of some specimens, but there are examples before me in which either one or two very minute rudimentary denticles are present, and there can be no doubt that the species is more properly placed here than in Group V, where it looks

much out of place. The only specimen of *macrocerus* at hand has a distinctly longer anterior tooth and two denticles and would naturally be referred to Group VII.

Schaeffer remarks that he has observed in both *macrocerus* and *compressicornis* that the anterior denticle is sometimes longer than the others, and I think there is little doubt that these two species would be more appropriately grouped with the species having a tooth and two denticles, though their antennal characters are such as to make them exceptional in that series. *Seminulum* and *atomus* on the other hand though more decidedly separated from Group VII by their femoral denticles are really closely allied to some of the smaller species of that group, small specimens of *aureolus* being, indeed, very similar to *seminulum*.

Antennæ longer than the entire body, serrate, all the joints except the second elongate, black, sparsely irregularly clothed with white pubescence. (New Jersey, District of Columbia, Tennessee.).....**macrocerus** Schf.

Antennæ passing the middle of the elytra, scarcely serrate, outer joints quadrate or transverse; black, more densely and uniformly pubescent. (Brownsville, Texas.)..**compressicornis** Schf.

Antennæ not or but slightly passing the base of the prothorax.

Legs and antennæ entirely yellow; pubescence of upper surface uniform, spur of hind tibia short. (Brownsville, Texas; Lower California.).....**flavicornis** Sharp.

Legs and antennæ black; pubescence more or less distinctly marmorate on the elytra with small subdenuded spots.

Coarse punctures of the pronotum very obvious, spur of hind tibia about one-fourth as long as the first tarsal joint. (Florida, Kansas.).....**seminulum** Horn.

Coarse punctures nearly wanting on the pronotum; spur of hind tibia two-fifths as long as the first tarsal joint. (Massachusetts, New York.).....**atomus** n. sp.

B. atomus n. sp.

Form rather stout, entirely black, rather thinly and unevenly clothed with cinereous pubescence, producing a finely marmorate effect, especially on the elytra; punctuation throughout very fine, sparse and indistinct. Eyes moderately prominent, separated by a distance which slightly exceeds their own width. Front not in the least carinate. Antennæ rather short, moderately incrassate, joints 6–10 transverse. Prothorax moderately transverse, sides feebly arcuate. Elytra about as wide as long, a little wider behind. Pygidium subvertical. Hind

thighs with two very minute, equal, well separated denticles; hind tibia not visibly carinate externally, the terminal spur about two-fifths the length of the first tarsal joint. Length, 1.1–1.15 mm.; width, .7–.8 mm.

Hyannis (Cape Cod), Mass.; Newark, New Jersey. The type is one of a considerable series taken by Mr. Frederick Blanchard at the first named locality.

The smallest species known to me, though closely approached in size by *seminulum*, which is nearly related and much resembles it. The latter may, however, be at once distinguished by the much shorter spur of the hind tibia, and the obvious coarser punctures of the pronotum; the form is also slightly more elongate, and the pubescence is is not quite so distinctly marmorate. In his description of *seminulum* Horn alludes to the presence of a series of distant coarse punctures on the elytral interspaces, This appearance is due chiefly, if not entirely, to interruptions in the pubescence, there being scarcely a trace of any such punctures when the surface is denuded.

OTIORHYNCHIDÆ.

EUPAGODERES Horn.

So far as our species are concerned, the members of this genus are at once separable from those of *Ophryastes* by the prothorax being narrower and devoid of tuberosities at the sides. Dr. Sharp rejects this character as unreliable or insufficient, but remarks that they may be satisfactorily separated by the presence (*Eupagoderes*) or absence (*Ophryastes*) of adhesive pubescence from the lobes of the third tarsal joint. I have, however, already pointed out* that this character is largely, if not entirely, a sexual one, common to species of both genera. In this connection it is a significant fact that *wickhami* described by Sharp as an *Ophryastes* is really a *Eupagoderes*. The tarsi in *Ophryastes* are, it is true, generally if not always narrower than in *Eupagoderes*, sex for sex; but the degree of dilatation is variable in both genera, and judged by this character alone, many females of *Eupagoderes* would easily pass for *Ophryastes*. Notwithstanding this fact

* Trans. Am. Ent. Soc., XXXIII, p. 260.

Mr. W. D. Pierce in a recently published list* of the National Museum material uses the following characters in his key to the genera of the group *Ophryastes:*

Third tarsal joint broadly bilobed and much wider than the second, pubescent beneath ..... **Eupagoderes.**

Third tarsal joint not broadly bilobed, hardly wider than the second, emarginate at apex, not pubescent beneath.... **Ophryastes.**

The first of these diagnoses would exclude all females of *Eupagoderes*, and the second would shut out the males of at least some of our *Ophryastes*. Further study of Mr. Pierce's paper leads me to suspect that certain records are based on erroneous identifications in this group. *Argentatus* and *desertus* are really quite distinct species, and Mr. Pierce's statement that the two appear to be identical can hardly be explained in any other way. The remarks about *wickhami* indicate a failure to properly identify Sharp's species, nor is it likely that *speciosus* occurs at either Phœnix or Yuma, Arizona.

The four species described below are true *Eupagoderes.*

E. nivosus n. sp.

Elongate oval, very convex, very densely clothed with white scales, with or without faint mottling of darker scales along the striæ; setæ of upper surface spare and exceedingly minute, longer and more numerous on the legs and ventral surface. Head not appreciably transversely impressed at base of rostrum, the latter convex, trisulcate, all the grooves fine, the lateral ones rather long, nearly straight; median groove terminating in a small fovea in the position of the usual transverse impression. Prothorax a little less than one-half wider than long, widest at middle, sides rather strongly evenly arcuate, not distinctly constricted, but with a shallow apical marginal groove and a basal marginal impressed line which is deeper at sides; surface finely rather sparsely irregularly punctate, a little more coarsely so laterally; median impressed line fine. Elytra oval, without humeri, widest near the middle, twice as long, and one-fourth wider than the prothorax (♂), a little more inflated in the ♀; striæ fine, somewhat impressed and finely punctate, intervals feebly convex and nearly equal, the first and fourth slightly narrower than the second and third. Beneath and legs white, all the tibiæ denticulate within, the front ones most conspicuously so. Length 12–15 mm.

Phœnix, Arizona; a single pair.

* Proc. Nat. Mus., Vol. 37, p. 341.

The male is pure white throughout; the female is feebly mottled with faint oval annular spots, each centered on a strial puncture. In the female the median sulcus of the rostrum is longer than in the male, extending somewhat indefinitely upon the front.

By Horn's table *nivosus* would be associated with *speciosus* and *sordidus*. It is much smaller than the former and larger than the latter, and differently colored from either. There is little doubt that this is the species referred to in Mr. Pierce's list as *speciosus*.

E. marmoratus n. sp.

Similar in form to the preceding, densely clothed with ashy white and blackish plumbeous scales, strongly mottled on the elytra, the dark spots centered about the strial punctures, especially in the ♀, the first, third and fifth intervals in this sex with finely intermixed pale brown scales; prothorax with broad lateral and median plumbeous vittæ alternating with narrower irregular pale vittæ. Head without transverse impression, rostrum strongly trisulcate, the median groove very long and deep, reaching a point on the vertex opposite the upper margin of the eyes; lateral grooves narrower than the median one, but deep and moderately long, nearly straight. Prothorax a little less than one-half wider than long, widest before the middle, sides strongly rounded, the margin uneven from the coarseness of the lateral punctures; disk coarsely rather closely punctate, median sulcus well marked, entire. Elytra not very much wider than the prothorax in the ♂, more broadly oval in the ♀, the form proportions and sculpture as in the preceding species. Length 13–15 mm.

This species was taken in some numbers by Mr. Wickham at Tucson, Arizona. The type is a ♂ from an unrecorded locality in Arizona.

Marmoratus is most closely related to *nivosus*, differing in its strongly mottled scaly vestiture, more deeply sulcate beak, much more coarsely sculptured prothorax, which is widest in front of the middle. Some specimens of *argentatus* are similarly mottled, but this has the head transversely impressed at the base of the beak, and the prothorax much narrower. The Tucson examples show some variation in the development of the rostral sulci, these being finer in some than in the type.

E. aridus n. sp.

Elongate oval, convex, densely clothed with ashy scales having a faint flesh tint, and obscurely clouded with pale plumbeous chiefly along the third and fifth elytral intervals; prothorax with a narrower median and wide lateral darker vittæ, which are rather obscure. Rostrum with transverse basal impression, median sulcus broad and vague, lateral sulci short, convergent behind, vertex flattened, finely carinate at middle. Prothorax barely one-third wider than long, widest at middle, sides evenly rather strongly arcuate, apical marginal impressed line obsolete, basal marginal line feebly impressed, distinct only at sides; surface with unevenly distributed larger and smaller punctures, median line consisting of a series of more or less coalescent larger punctures. Elytra oval, without evident humeri, widest at middle, nearly two and one-half times as long, and slightly more than one-half wider than the prothorax; striæ fine, with fine rather distant punctures; intervals nearly flat on the disk, broadly convex laterally; setæ spare and short. Tibiæ not denticulate within. Length 14 mm.

Described from a single male specimen taken by Mr. Ricksecker in the hills on the western border of the Colorado Desert, California.

This species is nearest *varius*, differing from the single example of the latter species before me in the larger size, peculiar tint of the pale scales, finely carinate vertex (evenly convex in *varius*), somewhat less coarsely punctate prothorax, and more finely punctate elytral striæ.

E. mortivallis n. sp.

Elongate oval, clothed with silvery white scales, median impressed line of prothorax and a lateral vitta of lead-black scales, middle of the prothoracic disk and sutural interval of elytra more or less fulvous or pale yellowish-brown; intervals 2–4–6 slightly narrower and with darker scales, giving a faint vittate appearance. Beak transversely impressed at base, median sulcus moderate, lateral sulci rather short, subparallel, broadly arcuate. Prothorax one-third to two-fifths wider than long, widest at middle, sides broadly arcuate, basal and apical marginal grooves obscure on the disk, becoming sharply defined at sides, disk very finely not closely punctate, more coarsely punctured in the dark lateral vittæ. Elytra about three times as long as the prothorax, and about one-half longer than wide; striæ very fine, feebly punctured, intervals flat, setæ very sparse and minute. Legs and lower surface silvery white, tibiæ very finely denticulate within. Length 12–18 mm.

Death Valley, California (Koebele).

This fine species would fall near *geminatus* by Horn's table, but this latter species differs in its more transverse and

more coarsely punctured prothorax, with the sides strongly rounded, the less fine and more coarsely punctate elytral striæ, and the well defined elytral vittæ. I have seen examples of *desertus* which much resemble the present species, but these may be at once separated by the broader more impressed elytral sulci, which are much more strongly punctured.

In the following table of our species of *Eupagoderes* thus far described, *plumbeus* Horn, has been omitted. An examination of the types of this and *varius* shows them to be practically identical. *Dunnianus* is placed in accordance with the described characters, the species being unknown to me in nature.

A1. Rostrum continuous with the front.
  B1. Rostrum with sharply defined median sulcus.
    C1. Prothorax finely sparsely punctate.
      D1. Prevailing color of scales plumbeous, thorax and elytra vittate with white. 19 mm. Southwestern Texas. **speciosus** Lec.
      D2. Scales white, not or but feebly mottled. 12–15 mm. Phœnix, Arizona.....**nivosus** n. sp.
    C2. Prothorax more coarsely and closely punctate.
      Prothorax very coarsely punctate, scales white, conspicuously mottled with blackish plumbeous; all the tibiæ denticulate along the inner margin. 13–15 mm. Southern Arizona. **marmoratus** n. sp
      Prothorax moderately punctate; confusedly variegated above with pale and dark cinereous; tibiæ not denticulate. 6½–10 mm. Kansas to Arizona.....**sordidus** Lec.
  B2. Rostrum without median sulcus.
    E1. Scales light and dark gray, confusedly mottled; striæ fine, finely punctate. 7–11 mm. Western Texas to Arizona. **decipiens** Lec.
    E2. White, sometimes feebly unevenly mottled with gray; prothorax more transverse, elytral striæ very fine, scarcely punctate. 9½–11½ mm. El Paso, Texas....**dunnianus** Csy.
A2. Rostrum separated from the front by a transverse impression.
  F1. Elytral striæ wide, and rather closely coarsely punctate, intervals convex.
    G1. Basal joint of antennal funicle neither wider nor longer than the second; scales cinereous and fuscous intermixed; prothorax with wide dorso-lateral fuscous stripes. 8 mm. Cape San Lucas.....**lucanus** Horn.

G2. Basal joint of antennal funicle much longer and somewhat wider than the second.

H1. Elytral setæ longer and more abundant than usual, pale brownish testaceous in color, scales uniformly cinereous throughout. 13–20 mm. Winslow, Arizona.
wickhami Sharp.

H2. Elytral setæ much sparser and shorter, silvery white in color.

I1. Prothorax coarsely punctate, widest anteriorly; scaly vestiture mottled, white and dark gray; elytral setæ very sparse and excessively minute. 12–15 mm. Western Arizona and Colorado Desert of California.....**argentatus** Lec.

I2. Prothorax finely punctate, widest at about the middle; scaly vestiture whitish, not or scarely mottled; elytral setæ moderately numerous. 17–22 mm. Colorado Desert, California.
desertus Horn.

F2. Elytral striæ fine, finely punctate, the intervals flat or nearly so.

J1. Prothorax very finely punctate, scaly vestiture white, prothorax with rather wide dorso-lateral blackish vittæ, elytra feebly irrorate with blackish gray; tibiæ denticulate within. 12–18 mm. Death Valley, Southern California.
mortivallis n. sp.

J2. Prothorax rather coarsely and deeply punctate.

K1. Median sulcus of beak narrow and sharply impressed; prothorax trivittate with dark gray, elytra conspicuously vittate; tibiæ finely denticulate. 7½–12½ mm. Southern California.
gemmulatus Horn.

K2. Median sulcus of beak broader and more vague; neither prothorax nor elytra distinctly vittate; tibiæ not appreciably denticulate.

L1. Vertex evenly convex, scales whitish to cinereous, marmorate with darker gray; size smaller. 7–11½ mm. Arizona, California, Nevada.....**varius** Lec.

L2. Vertex flattened, finely carinate, scales pinkish-cinereous, feebly mottled with gray; size larger. 14 mm. Western border of Colorado Desert, California.....**aridus** n. sp.

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New genera and species described in this paper are followed by the name of the author.